

Washington Park  
**ARBORETUM BULLETIN**

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*Maples*

IN THE LANDSCAPE



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## Concerning this issue...

If asked to name a common tree, many would say "maple." Surprisingly, however, few publications are devoted to this glorious genus, which has so much more diversity of leaf form, color, and bark than the maple whose leaves we pressed between waxed paper as schoolchildren.

Considering that the Washington Park Arboretum has one of the leading maple collections in North America, it seemed natural to prepare this special issue when it was suggested by editorial board member Jan Pirzio-Biroli. We know that these articles, which represent just some of the wonders of maples, will get you interested in further exploring their uses in your garden landscape.

Within this publication, Arthur Lee Jacobson, author of *Trees of Seattle*, presents some notable Seattle maples. Brian Mulligan, director emeritus of the Washington Park Arboretum, has prepared a tour of some Arboretum highlights. Mr. Mulligan also writes about our special Japanese maple collection, and Chris Pfeiffer, Arboretum horticulturist, explains how to prune one.

Unusual leaves and colors await us among three maples that nurseryman Daniel Hinkley covers in his article. For those who are only aware of two of the Northwest's native maples—big-leaf and vine—Mary Sue Gee explains where to see Douglas maple and how to use it in the landscape. For those of us who have maples but just need to know how to diagnose problems that may arise, Washington State University Cooperative Extension authors Carrie R. Foss and Ralph S. Byther explain what to do. For other publications on maples, see Valerie Easton's column, and for an overview of the Japanese maple collection and an update on the Arboretum, see Director John A. Wott's quarterly remarks.

Welcome to the editorial board's new liaison with The Arboretum Foundation, Bill Mackay, who has previously served as Foundation treasurer. A treasure to work with, Bill is a long-time Arboretum Foundation member, and we are very grateful for his ongoing contribution to the *Bulletin's* success. It takes people like Bill to develop and enhance a living museum such as the Washington Park Arboretum.

Jan Silver, Editor  
*The Washington Park Arboretum Bulletin*



COVER:  
Appearing to have the first  
blush of autumn color are  
the variegated leaves of  
*Acer palmatum*  
'Karasugawa' in May,  
in the Washington Park  
Arboretum Japanese maple  
collection. Find this  
specimen on grid number  
32-1E on an  
Arboretum map.  
Photo by Joy Spurr.

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To find which plants in this issue can be viewed in the Washington Park Arboretum, see the newly revised *The Woody Plant Collection in the Washington Park Arboretum*, available in the Graham Visitors Center gift shop.

The *Washington Park Arboretum Bulletin* is published quarterly as a bonus of membership in The Arboretum Foundation, Seattle, Washington. The Arboretum Foundation is a non-profit organization that was chartered to further the development of the Washington Park Arboretum, its projects and programs, by means of volunteer service and fund raising. The Arboretum is administered through cooperative efforts between the University of Washington, its Center for Urban Horticulture (CUH), and the City of Seattle Department of Parks and Recreation. The programs and plant collections are a responsibility of CUH.

The mission of The Arboretum Foundation is to ensure stewardship for the Washington Park Arboretum, a Pacific Northwest treasure, and to provide horticultural leadership for the region. This stewardship requires effective leadership, stable funding, and broad public support.

Articles on gardening and horticulturally related subjects are welcome. Please call the *Bulletin* editor for guidelines or permission to reprint. © 1994 The Arboretum Foundation. ISSN 1046-8749.

### Information

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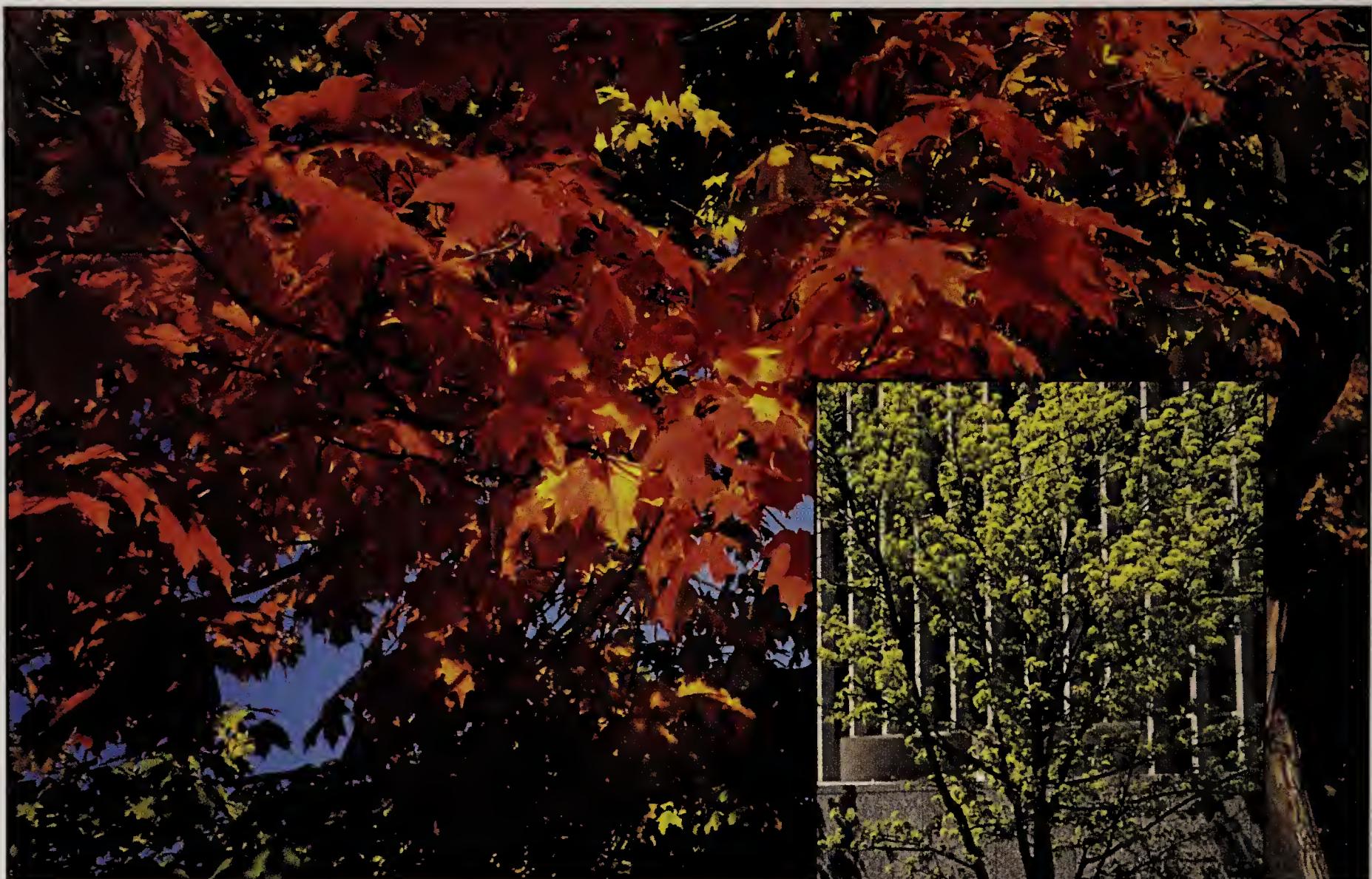
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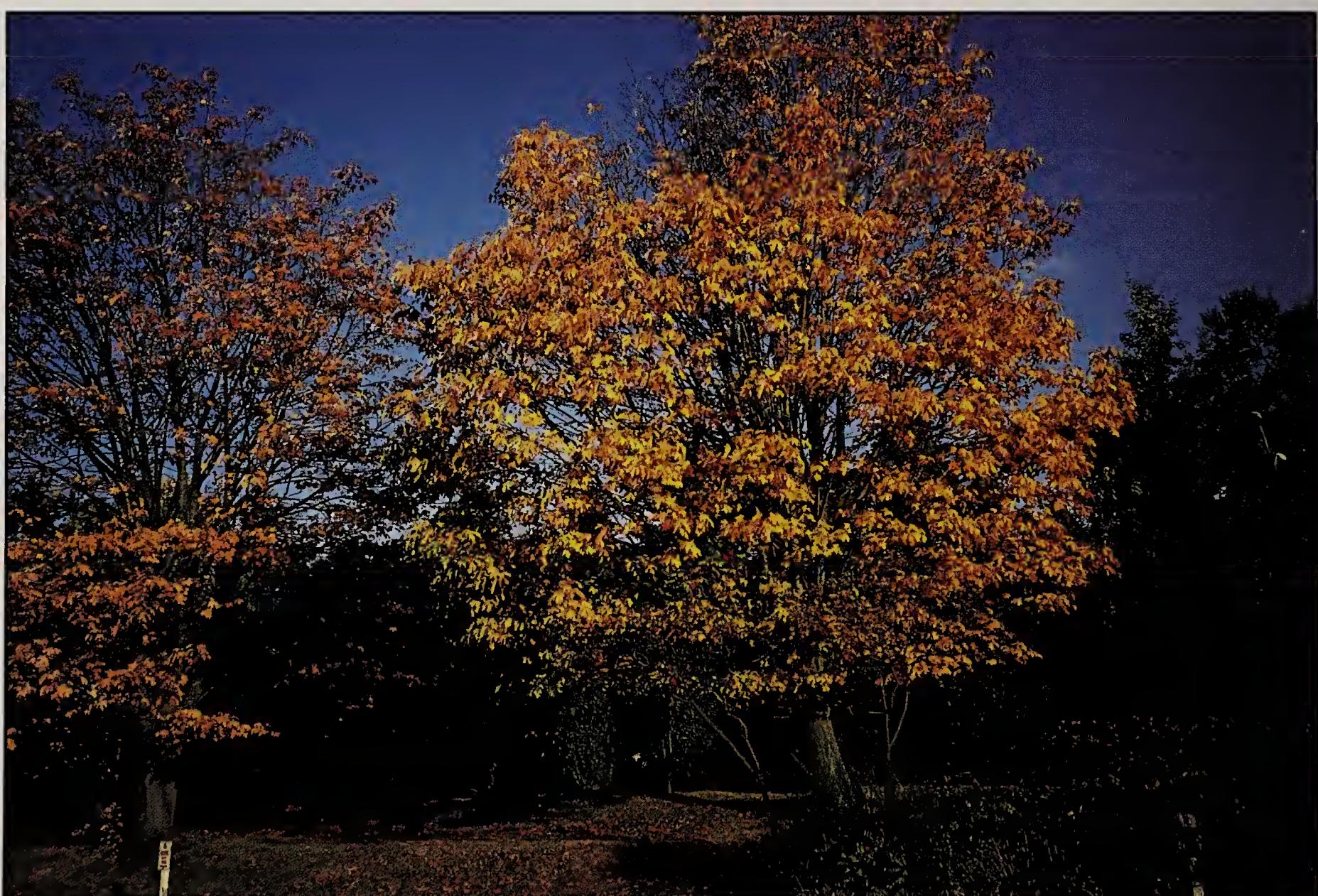
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TOP: *Acer saccharum* (sugar maple), in fall  
TOP INSET: *Acer platanoides* 'Emerald Queen'  
(Norway maple) by the Seattle Public Library  
BOTTOM: *Acer macrophyllum* at University of Washington



# Seattle's Common and Rising Star Maples, and the Devil Withal

photos and text by Arthur Lee Jacobson

**A**ny account of Seattle maples must give first place to what is surely the city's most common tree, bigleaf maple (*Acer macrophyllum*). Outstanding for abundance, large size, and immense leaves golden in fall, it is very familiar. However, its presence is waning yearly. At the turn of the century it was our most planted street tree. Now, the majority of such specimens have died or are rotting, and for many years it has been illegal to plant bigleaf maple as a street tree because its roots so readily buckle concrete. Also, insect or disease attacks are more prevalent than in earlier decades.

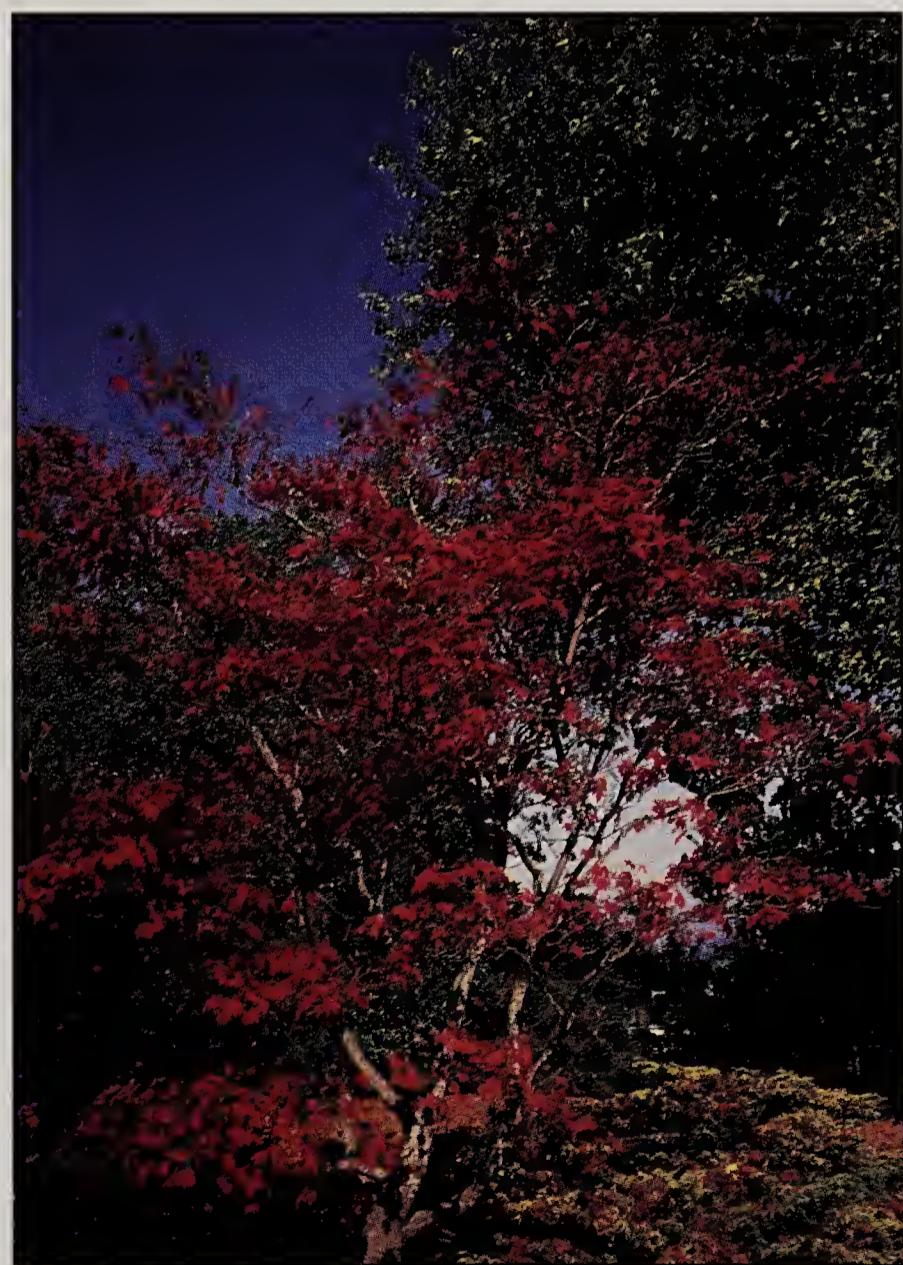
Currently, in Seattle's woodland parks, Norway maple and sycamore maple are colonizing faster than the bigleaf, because they reproduce easily in shade. This scenario means bigleaf

maple is, as a group, past its prime in the arboreal drama of Seattle's lifespan. As the specimens in the Washington Park Arboretum decline and are removed, the result will be an improvement, overall, but not without the price of some costly removal work and sunburned rhododendrons.

Many Seattleites are of Norwegian background. Norway maple (*Acer platanoides*) seems poised to take the lead as Seattle's premier maple in the future. Though native-plant lovers may sigh, nature's bottom line is survival of the fittest. Norway maple's toughness, crisply handsome looks, and weedy reproductive success all bode well for it. If money did grow on trees, investors would do well to swell their portfolios with stock of this naturalized foreigner. Nearly 50 Norway maple cultivars have been grown in North America whereas bigleaf maple has none



LEFT: *Acer palmatum* 'Sango Kaku' (coralbark maple)  
RIGHT: *Acer japonicum* 'Aconitifolium' (fernleaf maple)





*Acer rubrum*

to speak of. The Norwegian can be bought in a wide variety of forms, colors, and sizes. Every nursery sells them.

Although we respect strength in a tree since power compels attention, we really thirst for beauty. However elegant their branching, maples are preeminently associated with lovely fall color. Neither bigleaf maple nor Norway maple are better than average in this attribute. Both are usually pleasant enough but not consistently spectacular. For the best Northwest display of brilliant orange among the large-growing species, there is no rival to the eastern American sugar maple (*Acer saccharum*). Seattle's dry summers and sterile gravelly soils are perfect for stressing this species, thereby, as it were, inflaming its passion and causing it to blush sooner and redder. Seattle's largest sugar maple, 90 feet tall and 72 feet wide, is a street tree on Capitol Hill, on 17th Avenue East, just south of East Roy Street.

If pure red is preferred, the best large shade tree maple is another denizen of eastern United States woodlands, red maple (*Acer rubrum*). Unlike sugar maple, this has been overplanted here, at least during the last 20 years. Its performance has not been without blemish; neither it nor sugar maple are the slightest bit inclined to run wild. Although not known for fall color, phenomenal rapidity of growth characterizes silver maple (*A. saccharinum*), which also hails from the eastern United States and similarly loathes our dry summers too fiercely to naturalize here. Some promising hybrids between

red maple and silver maple are now available; these are selections of *A. x freemanii*.

Do you desire lively red from a smaller-scale maple? If so, the ideal trees are Japanese maples (*Acer palmatum*) in cultivars such as 'Osakazuki' or 'Tobiosho'. Another relative from Japan with equally stunning red fall color is the fernleaf maple (*A. japonicum* 'Aconitifolium').

A few Japanese maples are at their best in spring, with the young emerging foliage looking all the world like fiery red fall color in April. These cultivars include 'Chishio', 'Corallinum', 'Deshojo', 'Seigai', and 'Shindeshojo'.

The most overrated imposition of mapledom in recent years is the coralbark Japanese maple (*Acer palmatum* 'Sango Kaku'). Its leaf is small, conventional, and seems to scorn flamboyant fall color as unworthy of its attention so settles for an undistinguished yellow. When it is naked, however, it shines—scintillating bright red stems that really warm the spirit in winter. The problem with coralbark maple is that it is too brief in its glory. As a fast-growing youthful shrub or small tree it draws admiration from all. But give it 10 or 20 years, and bit by bit it degenerates into nondescript background, while other maples are growing more stately and no less beautiful with age. An improved version of coralbark maple called 'Beni Kawa' is worth trial, however. Even if it proves to be only a brief fling, it ought to be great fun while it lasts.

The maple with the most fascinating name happens to be one of the dullest imaginable in leaf and form and would be utterly condemned

if it did not have intriguing flowers and its catchy name, devil maple (*Acer diabolicum*). Yes, this is one of those plants gardeners want to grow, or at least know, simply for the name. It is from Japan, where the name "onimomiji" means devilish. It was so called because of the "wild and violent appearance of the leaves." Westerners, unaware of the reasons behind the name *diabolicum*, imagined it was derived from the stinging bristles on the seeds and/or the two tiny styles (like devil's horns) on them.

Because *Acer diabolicum* is so slow and dull, it is exceedingly rare. Do not despair. On the lawn west of the Japanese Garden parking lot, you can see two devil maples near the 35-foot-wide hornbeam maple (*A. carpinifolium*). The southernmost devil maple is male, the northern one female. In spring, the female flowers up close are joyously fascinating salmon-pink. But they result in seeds that look like unsightly clusters of waste paper among heavy foliage on a clumsily stout trunk; the entire tree is absolutely graceless, its fall color tawny (or, rarely, a good yellow).

Arthur Lee Jacobson is the author of *Trees of Seattle*, *Trees of Green Lake*, and *Purpleleaf Plums*.



*Acer saccharum*

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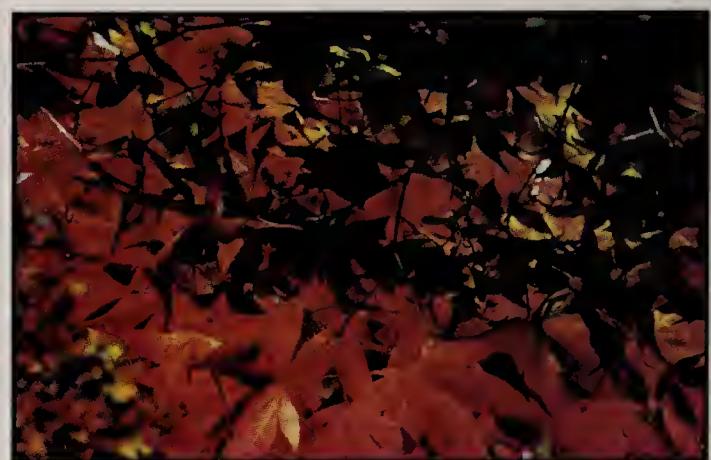
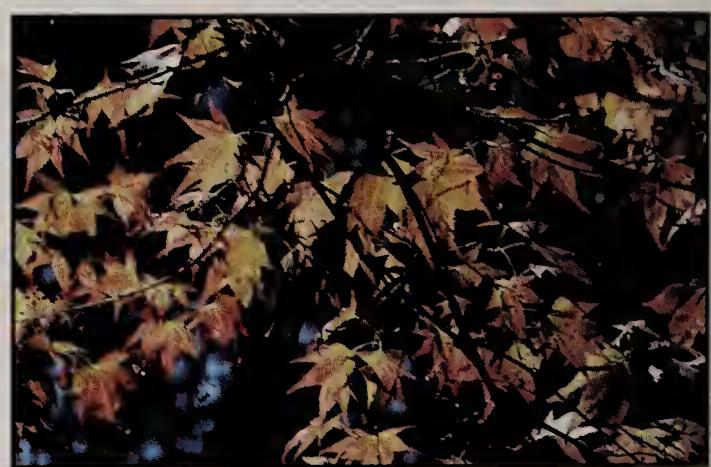
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TOP LEFT: Magenta samara (seed) among  
spring foliage of *Acer palmatum*  
'Shikageori Nishiki' in the Arboretum

TOP RIGHT UPPER: Spring foliage of  
*Acer palmatum* 'Nomura'

TOP RIGHT LOWER: *Acer palmatum*  
'Nuresagi' in May

BOTTOM: *Acer palmatum* var. *dissectum*  
'Viridis' in the Arboretum in July

OPPOSITE: The Arboretum's specimen of  
*Acer palmatum* 'Osakazuki' will mature like  
this one from VanDusen Garden.





ARTHUR LEE JACOBSON

# Japanese Maples of the Washington Park Arboretum

by Brian O. Mulligan

**C**hina, with its huge land area, contains by far the largest number of species of maples (*Acer*) of any country in the world. In contrast, North America boasts 13 (Sargent 1965). For a comparatively small country in land area, however, Japan is home to 22 species of maples.

When the term Japanese maple is mentioned, most gardeners and plants people think at once of some form of *Acer palmatum*. It is with these that this article is chiefly concerned, since it has given rise over the course of centuries in Japan to so many different variations and forms, both



COURTESY CUH

*Acer palmatum* 'Omato'

in growth habit and leaf shape and coloring.

#### *Acer palmatum* in the Arboretum

Two successive large importations of plants were made in March 1940 and March 1941, from the nursery of K. Wada in Japan. These were chiefly forms of *Acer palmatum* but also included plants of a few other native species and some magnolias. This was a very fortunate purchase at that date, as subsequent events proved. Dr. John Hanley was director of the Arboretum at that time and probably responsible for it.

The 1940 consignment included 82 clones of *Acer palmatum*, with several each of *A. japonicum* and *A. sieboldianum*—over 300 plants in all. In 1941, 71 plants were received, representing 43 clones of *A. palmatum*, distinct from the 1940 lot. At this point, there were 125 clones of this species in the Arboretum.

In January 1958, nine plants came from the nursery of H. J. Hohman, Kingsville, Maryland, a well-known nurseryman of that era. Eight of these were forms of *Acer palmatum*, one of *A. japonicum*. Then, in November 1966, a major collection, 79 plants in all, was given to the Arboretum by Mr. Rod Searles of Indianapolis, Indiana, who learned that he could not grow them outdoors in that climate. Most of these plants had previously been imported by him from Japan; a few had come from the Netherlands or the Hohman nursery in Maryland. The Searles accessions varied greatly in size, from

nine to 12 inches to some 3.5 feet tall—usually only one plant of each kind. Five clones were of *A. japonicum*, one the very attractive form of *A. crataegifolium* with variegated foliage, named 'Beni uri'.

The Wada Japanese maples spent the World War II years (1941–1946) in the old nursery on the slope just south of the lath house. By the end of 1946 or early 1947, when I inventoried them, many were from three to six feet in height and urgently needed moving out, like most other plants there.

#### Plantings

The area allotted to the maple family under the Olmsted plan was on the west side of Lake Washington Boulevard East between the Madison Street playfield and Interlaken Boulevard, where the Japanese garden now flourishes. From 1945 to 1946, a few plants were placed there and still remain within the garden, mostly near the south end and the small stone bridge. Many more of the Wada plants were moved in April 1948, totalling 51 different clones. The first to the Woodland Garden were in April and May 1949. Some of those in the original site were transplanted to the Woodland Garden or just north of it in December 1955, some a year later, and others in January 1958.

The first plantings of the Searles maples were in the spring of 1968, into or around the Woodland Garden. Others followed in January and December 1971, as they became large enough to move. Two, 'Beni Kagami' and 'Samidare', went to the Japanese Garden in April 1971.

Also in 1971, former Arboretum curator Joseph Witt was responsible for the group planting at the southeast corner of the Woodland Garden, close to Arboretum Drive East, and additions were made in the spring of 1973. And



COURTESY CUH

*Acer palmatum* 'Butterfly'

Joe made two more quite extensive plantings of Searles maples, one in the spring of 1977 (15) on the south bank of the Woodland Garden near its west end, the other (11) on the north bank in December 1978.

A review of all the Japanese maples made this summer by student intern Kim Anderson shows that 68 accessions are correctly named and identified. Four of these are only found in the Japanese Garden. Thirty-eight are represented by only one plant, a regrettable state that should be rectified systematically as soon as possible. Eleven clones need further checking either in spring or fall to confirm their identities.

Of Japan's 22 maple species, only one, *Acer tenuifolium*, a near relative of both *A. palmatum* and *A. shirasawanum*, is not found in the Washington Park Arboretum. It is, however, described and illustrated in the magnificent book of the late J. D. Vertrees, *Japanese Maples*, so it should not be too difficult to add a plant or two to our collections.

#### Recommended Clones of *Acer palmatum*

(\* = in WPA)

##### SPRING OR SUMMER FOLIAGE COLOR

\*'Atropurpureum Superbum', \*'Bloodgood', \*'Mushashino' ('Nomura'), \*'Nuresagi', 'Trompenburg', \*'Tsuma Beni'

##### VARIEGATED LEAVES

\*'Butterfly', \*'Higasayama', \*'Karasugawa', \*'Orido Nishiki'

##### PENDULOUS HABIT, LARGE PLANTS

\*'Burgundy Lace', 'Kinran', \*'Matsukaza', \*'Ogonsarasa', \*'Omurayama'

##### DISSECTUM FORMS

'Garnet', \*'Ornatum', 'Sunset', \*'Viridis'

##### FALL LEAF COLOR (RED OR YELLOW)

\*'Omato', \*'Ozakazuki', \*'Tana', \*'Hagoromo', \*'Tsukushigata', \*'Ukon', \*'Yezo Nishiki'

Brian O. Mulligan is director emeritus of the Washington Park Arboretum and a lifetime member of the editorial board of the *Washington Park Arboretum Bulletin*.

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Ohwi, J. 1965. *Flora of Japan* (in English). Washington, DC: Smithsonian Institute.

Sargent, C. S. 1965. *Manual of the Trees of North America*. New York, NY: Dover Publications.

Vertrees, J. D. 1978. *Japanese Maples*. 2 ed. 1987. Portland, OR: Timber Press.

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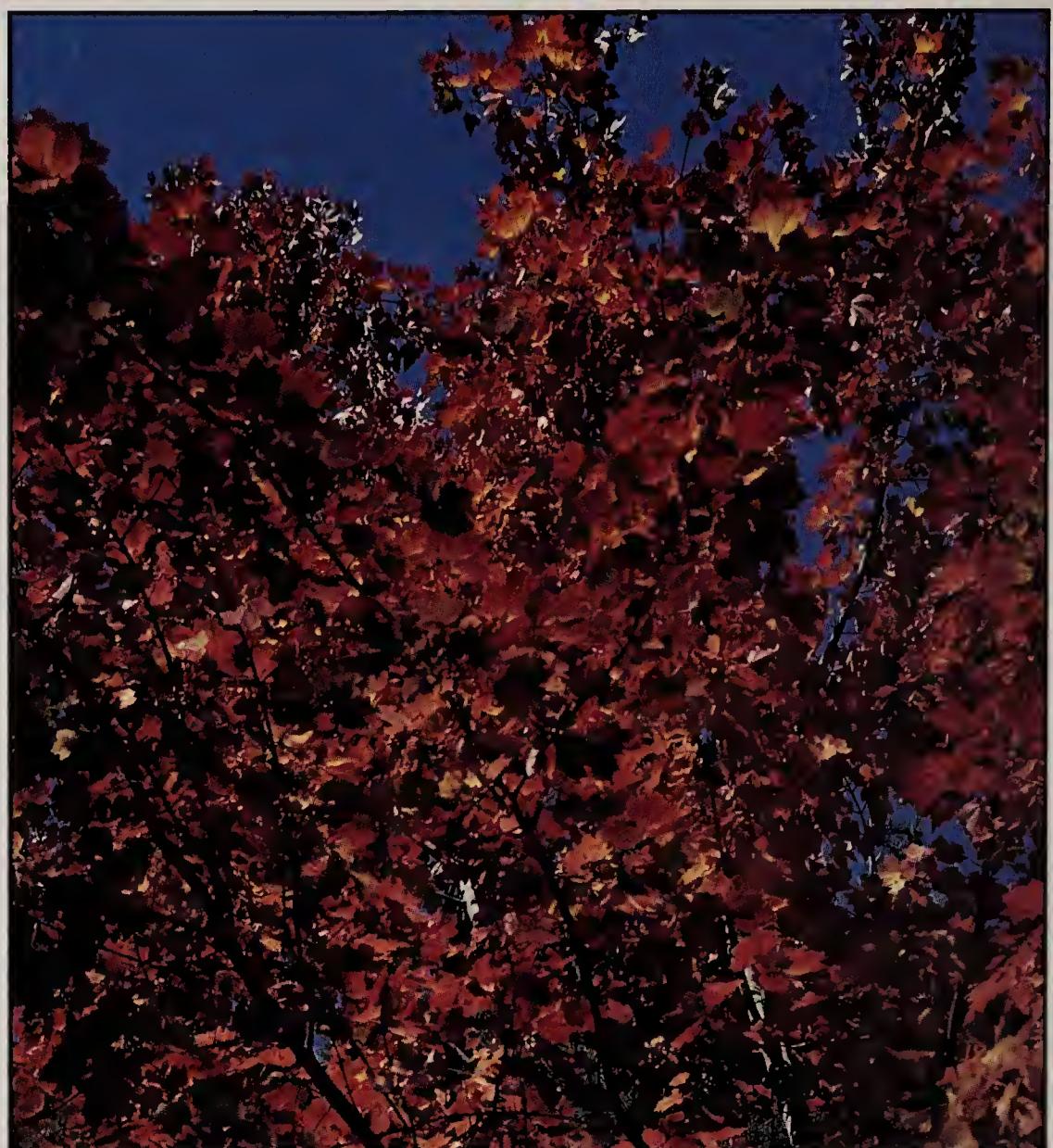
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TOP LEFT UPPER: *Acer grosseri* (stripebark maple) bark  
TOP LEFT LOWER: *Acer griseum* (paperbark maple) bark

TOP RIGHT: *Acer rubrum* 'October Glory'

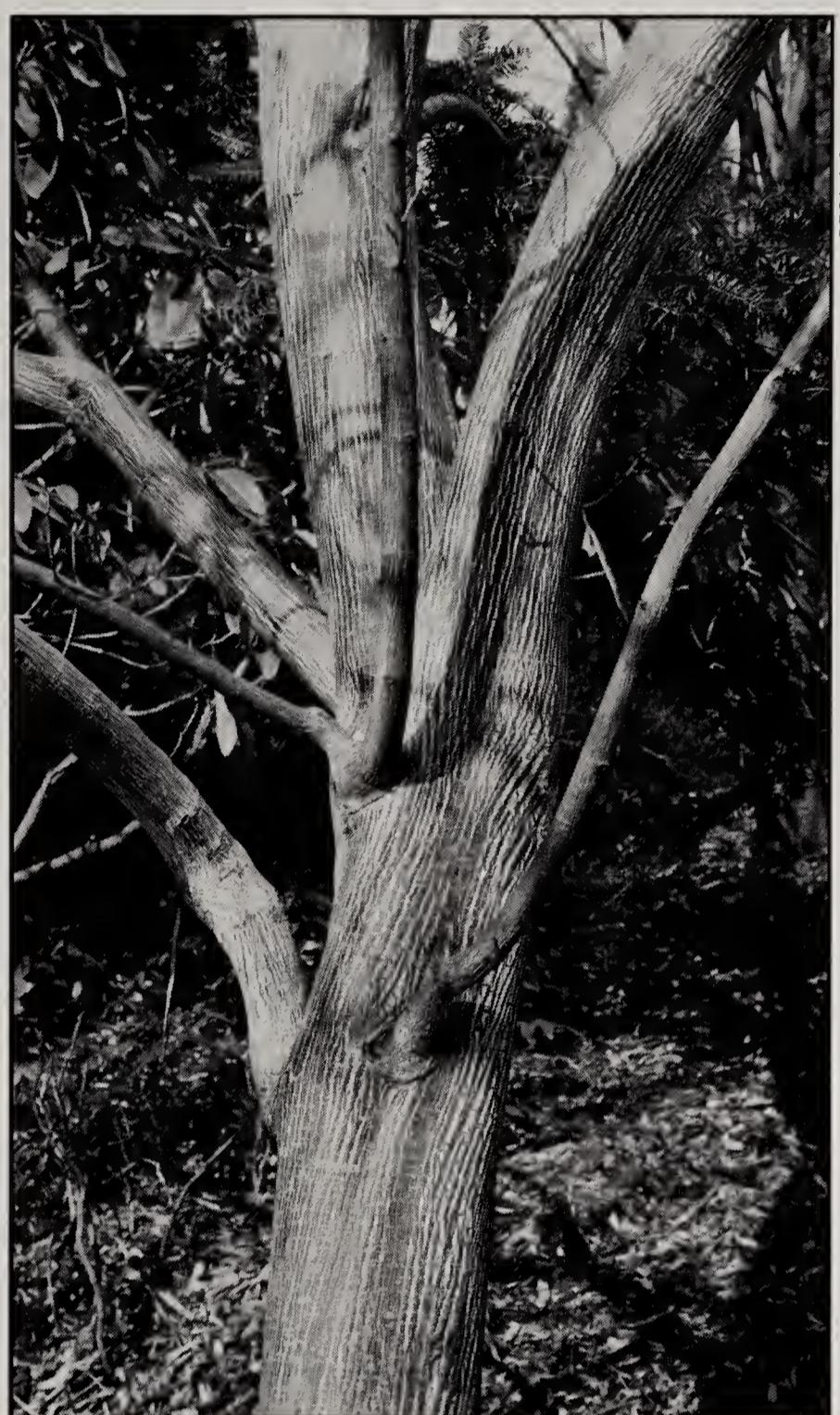
BOTTOM: May flowers of *Acer circinatum* (vine maple)

# A Tour of Arboretum Maples

by Brian O. Mulligan  
color photos by Joy Spurr

*Starting at Graham Visitors Center,  
you can view notable specimens of  
Acer (maples) during a loop walk through  
the Washington Park Arboretum.*

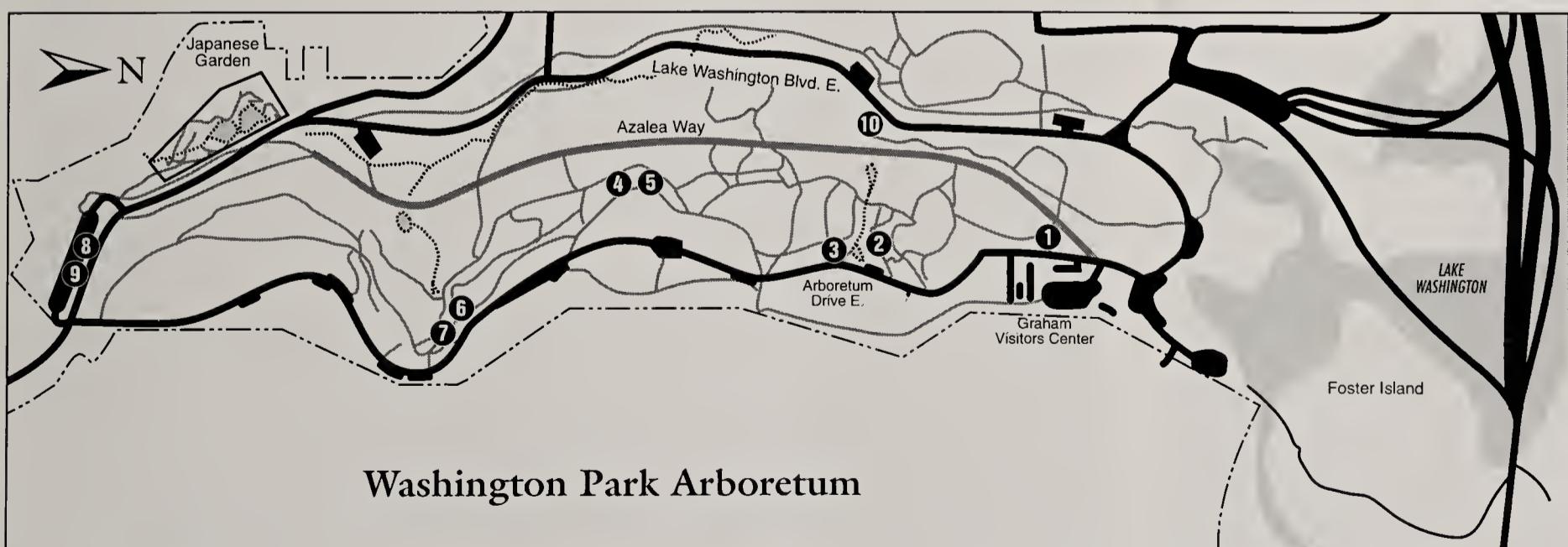
1. *Acer circinatum*, native vine maple, opposite Graham Visitors Center.
2. *Acer capillipes*, in the Woodland Garden, which also has many forms of *A. palmatum*.
3. *Acer japonicum* and *A. sieboldianum*, at southeast corner of the Woodland Garden.
4. *Acer grosseri* in collection of Asiatic maples, with *A. davidii*.
5. *Acer griseum*, with Asiatic maples.
6. *Acer tegmentosum*, in peony collection, by Arboretum Drive East.
7. *Acer davidii*, a large specimen.
8. *Acer saccharum* 'Globosum', a round-headed form of the American sugar maple, coloring orange in October.
9. *Acer macrophyllum* 'Seattle Sentinel', a fastigiate form of our native species.
10. *Acer rubrum*, the red maple, in several different forms here; colors well in fall and is visible from Lake Washington Boulevard East and Azalea Way.



One of the unusual species of stripebark maples in the Arboretum, *Acer tegmentosum*.

---

Brian O. Mulligan is director emeritus of the Washington Park Arboretum.



# Diagnosing Maple Problems

by Carrie R. Foss and Ralph S. Byther

**M**any problems of maple trees have similar symptoms at first glance. Determining whether the tree has *Verticillium* wilt, *Nectria* canker, leaf scorch, or anthracnose requires thorough examination of the tree and knowledge of the potential problems. To aid in using the diagnostic methods suggested below, carry a sharp knife and hand lens (or dissecting microscope), and have good reference materials at hand to supplement this article.

## To Start the Diagnosis

The first step in diagnosing your maple's problem is to clearly note all the symptoms and their distribution on the tree. Look at leaf symptoms for the first clue in determining the type of disease involved. Leaf spots or blotches randomly distributed on the leaf indicate a foliar disease problem. Marginal leaf necrosis—dead areas confined to leaf margins—is often related to a cultural or environmental problem.

To help diagnose the problem, note the distribution of leaf symptoms on the entire tree; for example, a root rot problem usually affects the entire tree, while a canker disease may affect only one or two branches.

Though leaf symptoms are important, also determine if the twigs and branches are alive or dead. A green layer beneath the bark indicates that the tissue is alive; if it is brown or black, it is dead. Examine twigs, main branches, and the trunk at the soil line. It may also be necessary to check the roots.

The next step in diagnosis is to carefully examine the affected plant material with a hand lens or dissecting microscope. "Signs" of a fungus, such as thread-like hyphae or fungal fruiting bodies, may reveal the specific organism causing the problem. Insect cast skins, frass (insect excrement), or presence of insects may be clues to an insect-related problem.

Also useful in problem solving is finding information about the history and cultural practices surrounding the tree. Note the plant size. Also obtain information on watering practices, fertilization, and chemical usage.

Determine when the tree was planted and when the problem was first observed.

The final step includes putting together all the information you have obtained and consulting reference materials to diagnose some of the problems. Following this section are brief sketches of each problem; if you need further information, consult *Diseases of Trees and Shrubs* (Sinclair et al. 1987), which contains many photographs and biological descriptions. Extension bulletins are available on the leaf scorch of shade trees, *Verticillium* wilt, *Armillaria* root rot, and *Nectria* canker. The *Pacific Northwest Plant Disease Control Handbook* (Koepsell and Pscheidt 1994) contains brief problem descriptions and explains techniques for managing disease.

## *Verticillium* Wilt

*Verticillium* wilt, a disease of many different kinds of plants, is particularly common on maples. Where this disease occurs, the leaves on

## Photos

TOP: The fungal disease, maple anthracnose, can cause foliar symptoms similar to leaf scorch, which are randomly distributed on the tree. Anthracnose lesions are often associated with veins and may be necrotic spots or irregular blotches.

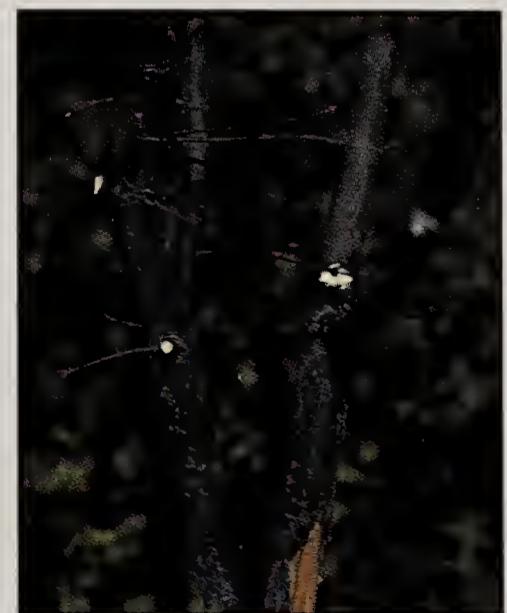
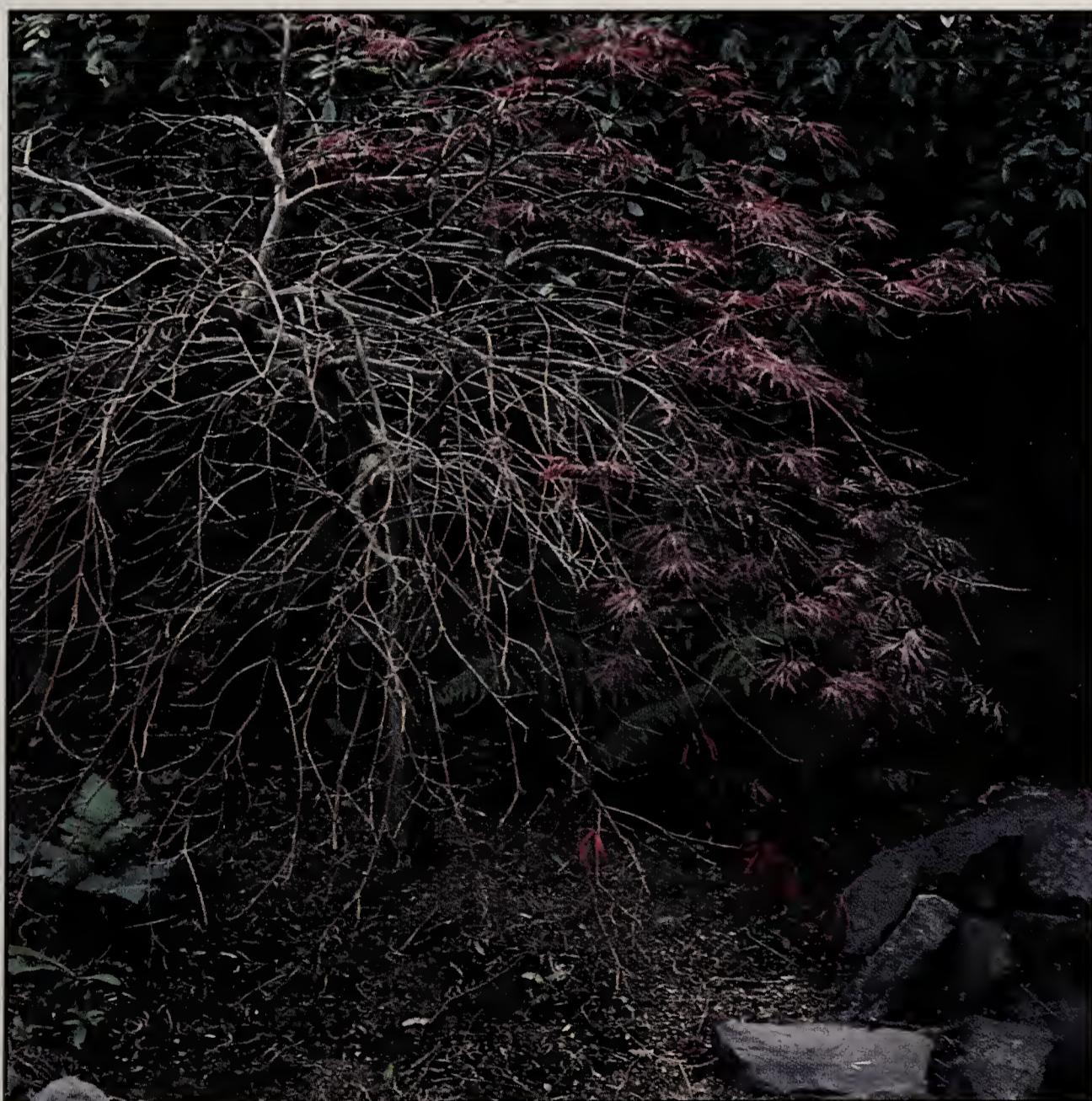
BOTTOM LEFT AND RIGHT UPPER: *Verticillium* wilt is particularly common on maples, causing leaves to suddenly wilt and die or drop. They may be stunted or yellow. Another indication is olive-green streaks when a lengthwise cut is made in the sapwood.

Often initial symptoms will only occur on part of the tree, while the remainder appears healthy.

BOTTOM RIGHT LOWER: If your maple shows cankers, dieback, or leaf spots, it may have *Pseudomonas syringae* pv. *syringae*.



PHOTOS BY RALPH S. BYTHER



diseased maples may suddenly wilt and die or may suddenly drop at any time during the growing season. These symptoms may occur on only one or on several branches, on only one side, or over the entire tree. The leaves may or may not be stunted to yellowed. Diseased maples may die quickly or may live for years. Younger trees usually show a greater degree of damage than older ones.

To confirm the diagnosis of *Verticillium* wilt, cut lengthwise into the affected twigs and branches and possibly into the trunk. Look for olive-green streaks in the sapwood just below the cambium. The intensity of streaking will vary and may not be evident in all of the branches showing symptoms. Therefore, examine a number of twigs and branches before making a final judgment. Symptoms are reported to be most intense in the trunk and roots but are difficult to sample on large trees in a landscape situation.

The fungi causing *Verticillium* wilt, *Verticillium albo-atrum* and *V. dahliae*, usually infect the plant through the roots but can also infect through wounds on the above-ground parts of the plant. The fungus can survive in the soil for many years, even after the diseased plant has been removed.

Although severely infected trees usually die, *Verticillium* wilt can be culturally managed in some cases to prolong the life of the infected tree or perhaps aid in its recovery. First, prune out and destroy affected branches. Destroy the infected branches by burning or placing in the rubbish. Give the tree good cultural care to ensure normal growth. Avoid over-fertilizing (especially nitrogen), and keep the tree watered to avoid water stress. Completely remove dead trees, including the root system. Prevent the movement of infected soil to other areas of the landscape. Do not track it on shoes or carry it on tools. Be sure to sterilize pruning and diagnosis tools before working on another tree.

Replant with a *Verticillium*-resistant or -immune tree or shrub, such as birch, dogwood, willow, or juniper. Lists of resistant plants are available in reference materials.

### Canker Diseases

Several canker diseases can afflict maple trees. The presence of a canker may first be noticed in the spring when new leaves emerge and subsequently die or show severe symptoms of scorch.

The death of leaves may then be traced back to a dead area on the trunk or branch. Identify this dead area or canker by making small cuts to examine the vascular cambium. Japanese maples are susceptible to winter injury that may result in a canker on the trunk or a main branch. When only moderately cold temperatures occur, the phloem, which is the principal food-conducting tissue, may be green while the vascular cambium is discolored black or dark brown. Sometimes these branches may recover, but usually they will die.

If your maple has cankers, dieback, or leaf spots, it may have *Pseudomonas syringae* pv. *syringae*. The pathogenic bacteria invade maple tissue by entering the plant through wounds or natural openings. Frost damage and heavy rains favor disease development. Cankers resulting from winter injury may subsequently become infected by *P. syringae* and result in a blackening of the tissue. The leaf-spot phase of the disease usually begins as small water-soaked lesions with yellow halos which later blacken and coalesce to form blotches. One-year-old twig infections turn black in the dormant season. The infected twigs may produce leaves the following spring and then die back.

To get rid of the bacteria, remove and destroy dead twigs and fallen leaves of an infected tree. Prune the tree during dry weather to provide adequate air circulation and protect from rain and frost, if possible. Severely infected trees should be removed and destroyed.

*Nectria* or *Tubercularia* canker are fungal diseases of numerous tree species including maple. These fungi usually invade maple tissue through wounds and are not considered aggressive pathogens. Winter injury, damage from drought, sunscald, leaf scars, cracks in the twig axil, or senescent low branches predispose a maple to disease.

Maples can be infected by two *Nectria* species, *Nectria cinnabarina* and *N. galligena*. The perfect (sexual) stages (*N. cinnabarina* or *N. galligena*) are characterized by small, globose, orange-red to dark red fruiting bodies that can be easily seen with a hand lens. The conspicuous imperfect (asexual) stages (*Tubercularia vulgaris* or *Cylindrocarpon mali*, respectively) are either coral-pink to pink-orange or creamy spore masses rupturing through the diseased bark.

To manage *Nectria* canker, prune and destroy

infected twigs and limbs. Avoid creating wounds and branch stubs from pruning. Fertilize and water properly to keep the tree growing vigorously. However, avoid fertilizing in mid-summer to early fall to allow new growth to harden prior to cold weather.

### Leaf Scorch

Leaf scorch describes a symptom commonly observed on maple and other shade trees. Dead leaf margins and areas between the veins are usually distributed uniformly on the tree. The tissues between the wood and the bark of twigs and branches will be alive and not discolored. There will not be dark streaking in the sapwood as observed with *Verticillium* wilt.

Leaf scorch symptoms most often indicate that water uptake has been inhibited; there are many possible causes, both pathogenic and environmental. Pathogenic cankers and root rots may first become apparent when leaf scorch symptoms are observed. Over-fertilization may damage fine roots or result in translocation of excess salt to leaf margins. Drought stress, improper planting, root girdling, overwatering, and winter injury to the trunk are some of the factors that can result in leaf scorch symptoms.

Identifying the exact cause of leaf scorch can often be difficult, but it is the important first step in finding a possible solution.

### Anthracnose

The fungal disease, maple anthracnose, can cause foliar symptoms similar to leaf scorch. However, anthracnose lesions are usually not restricted to marginal and interveinal leaf tissue and are randomly distributed on the tree. Anthracnose lesions are often associated with veins and may be necrotic spots or irregular blotches. Twig infections may also result in cankers that provide overwintering sites for the fungus. Severely infected trees may be prematurely defoliated.

Examining lesions with a hand lens may reveal the presence of tan fruiting bodies that help diagnose *Discula* spp. and *Kabatiella apocrypta*, which cause maple anthracnose. Manage through good sanitation practices. Rake up and destroy infected leaves. Prune out and destroy infected twigs. Highly susceptible trees may require protective fungicide applications during the spring and summer until the advent of dry weather.

### Leaf Spot

Other maple leaf diseases include *Phyllosticta* leaf spot and *Rhytisma* tar spot. *Phyllosticta* leaf spot produces small, reddish brown, circular spots with purple borders on most susceptible maples. Tiny black fruiting bodies may be observed with a hand lens in the dead areas. *Phyllosticta* leaf spot can cause severe damage on Japanese maple where the spots appear to be tan or straw colored.

*Rhytisma* tar spot is common on bigleaf maples and attacks many species of maple including silver, mountain, and striped maples. The leaf infections are first small and water-soaked, but later turn brown. Distinct small, dark dots, which are fungal fruiting bodies, appear on the interveinal areas of the upper leaf surface. Premature defoliation may occur with severe infections.

Culturally manage fungal leaf spot diseases with sanitation methods. Rake and destroy infected leaves. Avoid overhead irrigation on small trees since moist leaf surfaces favor disease development.

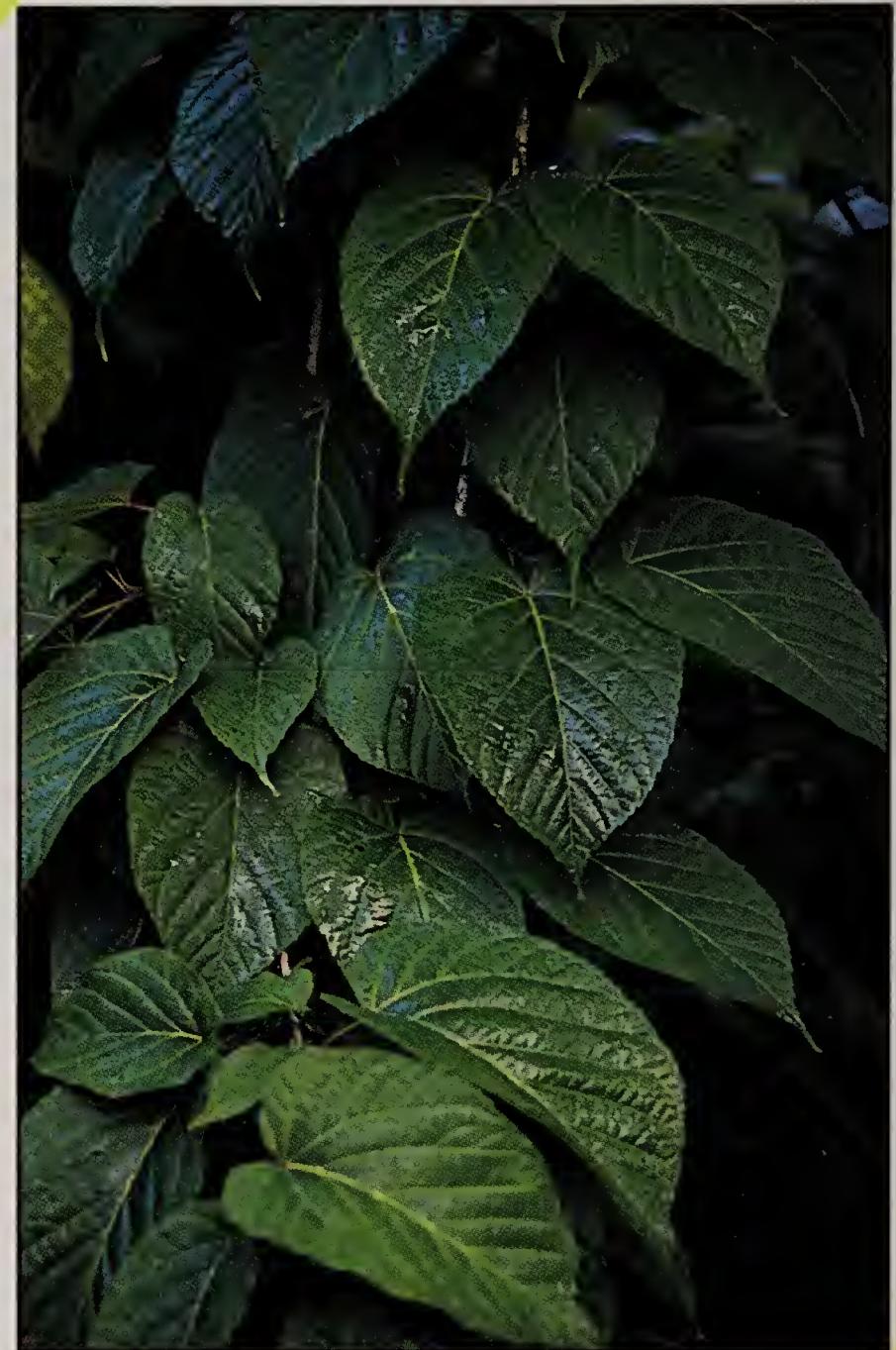
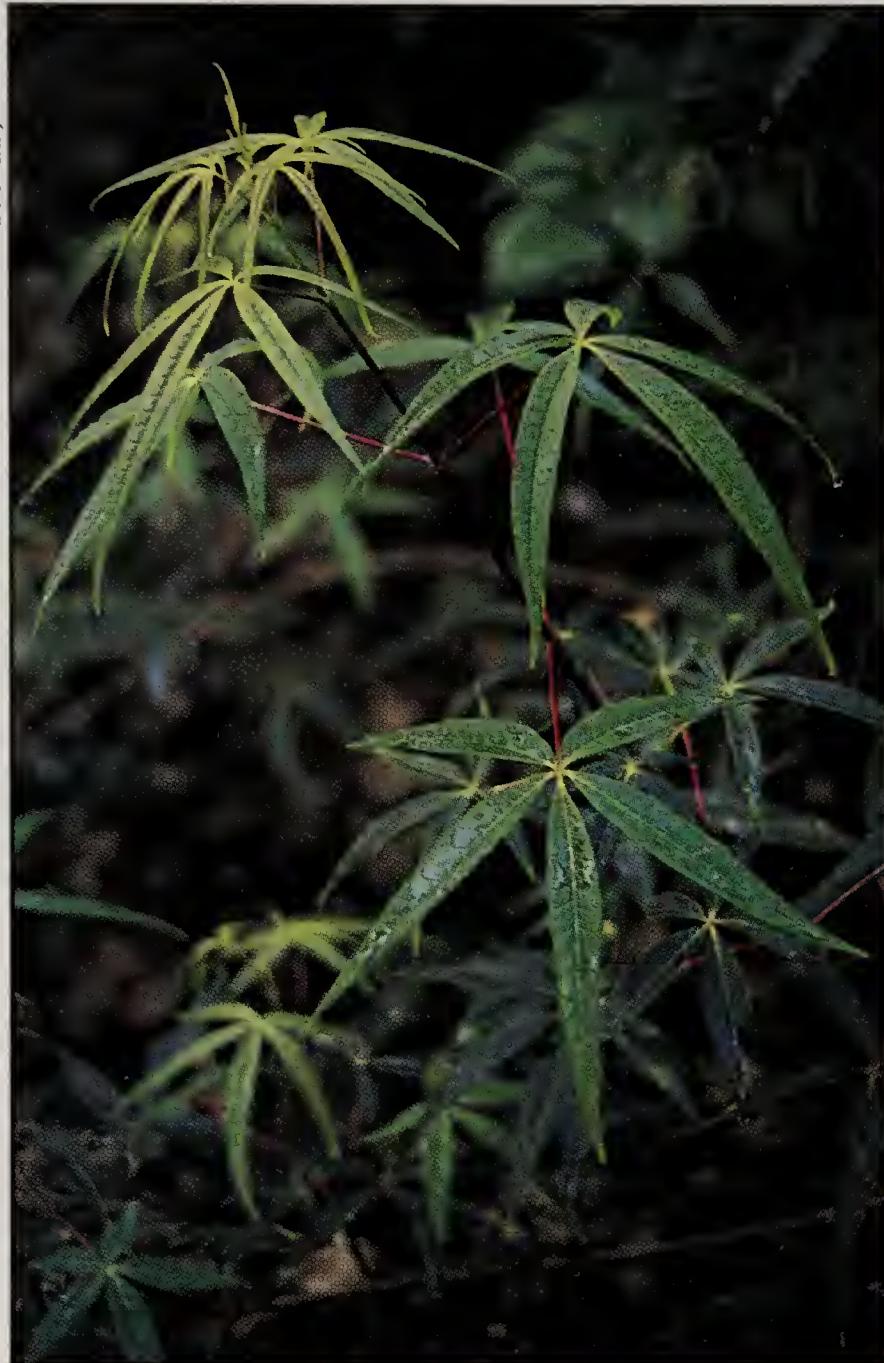
Accurate diagnosis of a maple problem is the first step in effective management. This requires thorough examination of the affected plant and complete information on its cultural conditions. You can then implement a successful management strategy to ensure long life to these beautiful shade trees.

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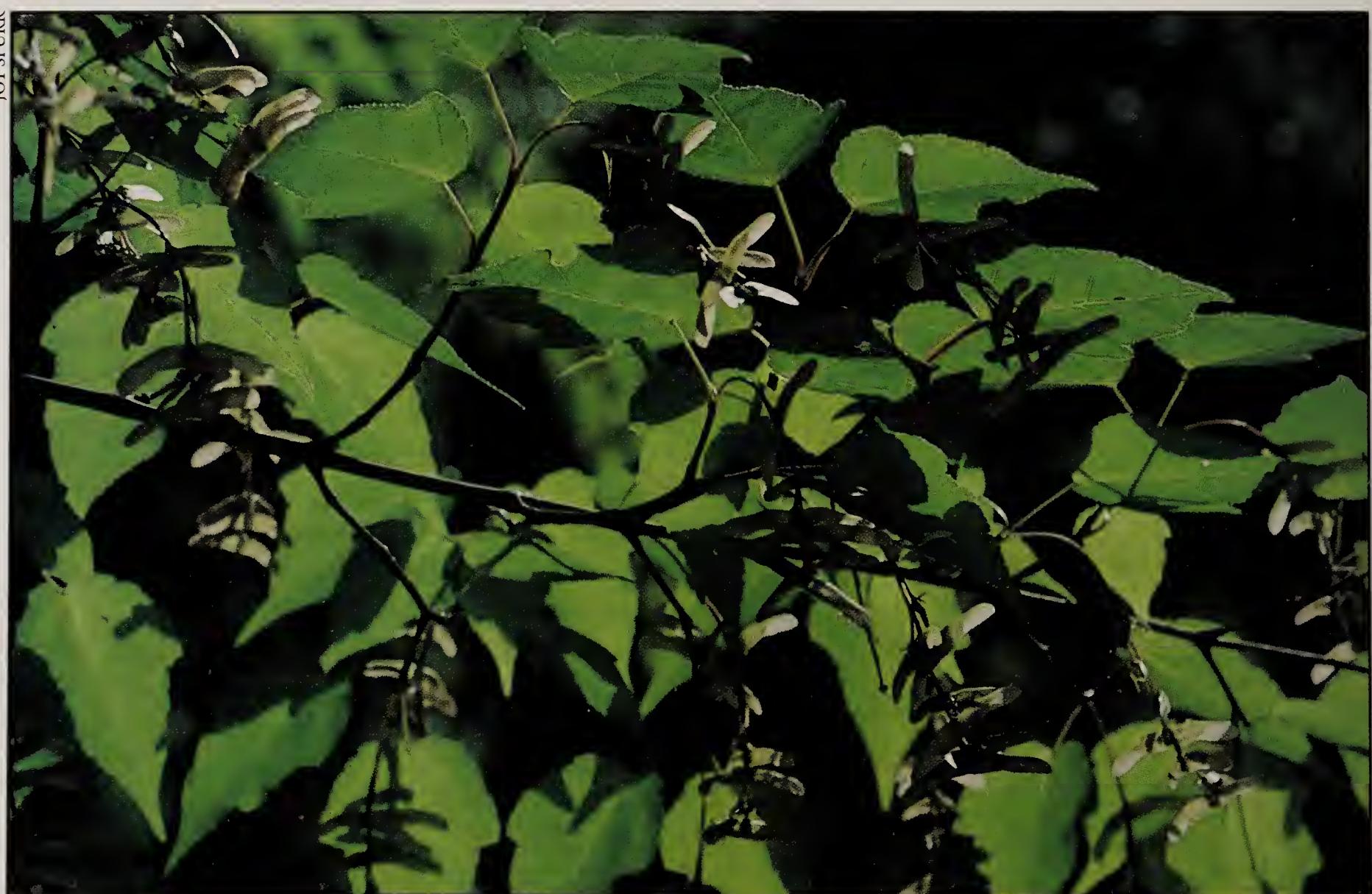
Carrie R. Foss is Plant Clinic Diagnostician at Washington State University, Puyallup, in Puyallup, Washington. Ralph S. Byther is Extension Plant Pathologist at Washington State University, Puyallup.

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TOP LEFT: *Acer pentaphyllum*  
 TOP RIGHT: *A. distylum*  
 BOTTOM: *A. crataegifolium* seed pods  
 OPPOSITE: *A. crataegifolium* 'Veitchii'



# Underused Understory: Three Maples for the Pacific Northwest

by Daniel J. Hinkley

In the woods and reclaimed farmland of northern Michigan where I came to know trees, the maples were among my first possessions. Never an obsession, my intimacy with the genus has weathered the storms of a master's thesis and deepened to a point well beyond admiration. Although I shudder to think that my musings are rife with New Age botanomorphism, maples simply are. I have no favorites, but I will not hesitate when asked to introduce a few members of the family.

## Heart-Shaped Leaves: *Acer distylum*

Those who truly love plants know too well the experience of meeting a new species that titillates—that moment when, regardless of company, there is no reneging on that primal gutteral sound mounting from the inner diaphragm. Thus it was, in that May of 1 1983, dazed, delighted, and fortunately alone, I made my first acquaintance with *Acer distylum*.

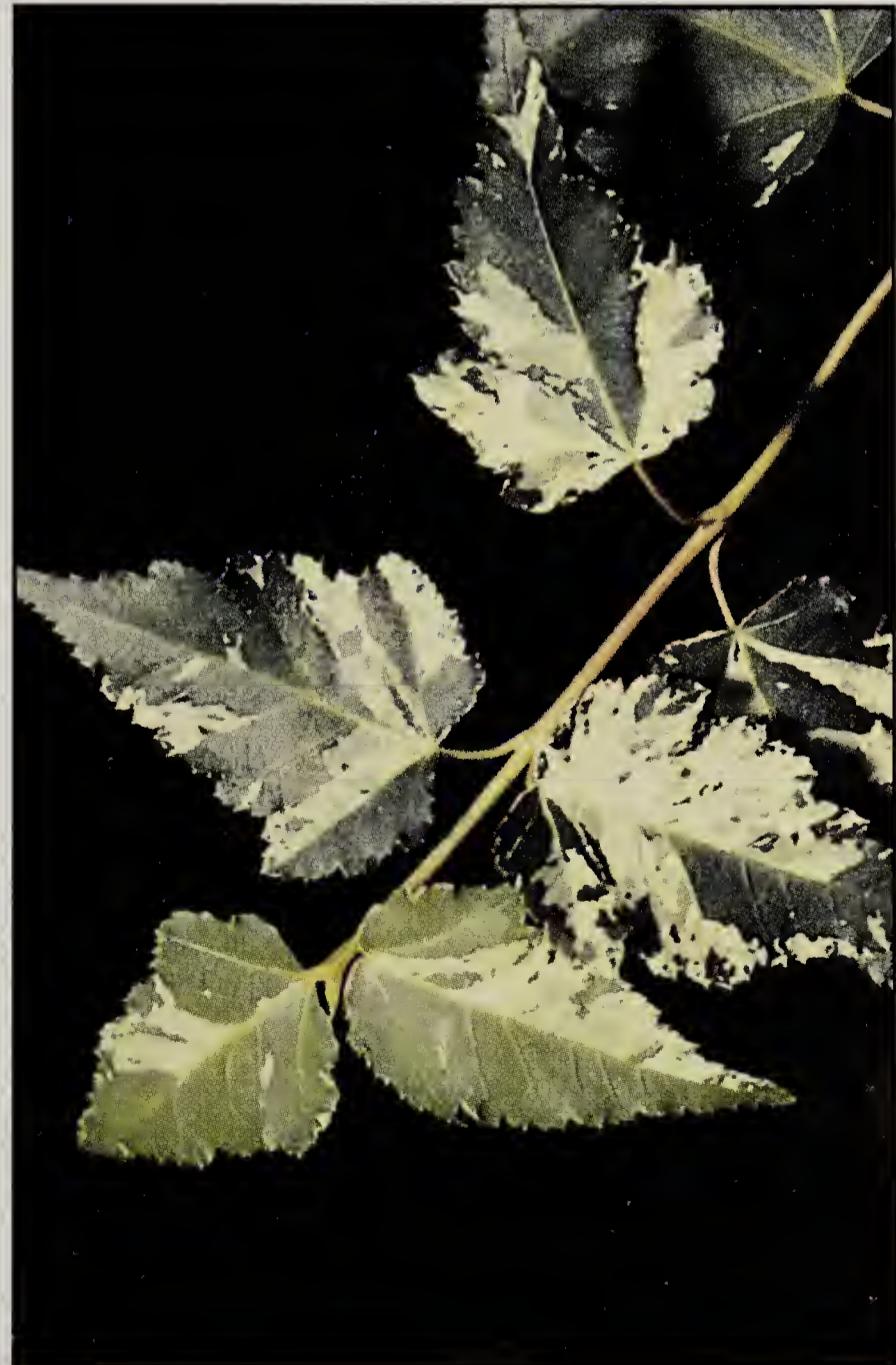
The leaves of this species emerge in spring with an ephemeral dense coating of rosy golden hairs, conspicuous from some distance. As the heart-shaped leaves further expand, ultimately to six inches in length, they become fully glabrous and medium green with the petioles (leaf stalk) retaining a nice reddish pink coloration if grown in full sun. Although many liken the foliage to that of *Tilia* (linden), I find comparison of a single leaf between this species and *Davidaia involucrata* (dove tree) remarkably similar; the opposite leaf arrangement of the maple in situ, however, is a dead giveaway.

The yellowish green flowers are produced in erect racemes in early spring as the leaves emerge. Although the sexual expression of many maple species is likely to change from year to year, *Acer distylum* consistently serves up perfect flowers, i.e., with both sexual parts, and is apparently quite self fertile. The sole specimen in the Washington Park Arboretum, on the lawn between the camellia plantings and the Lookout, produces viable seeds on a yearly basis. Its offspring now grows in my garden, which in

seven years (suffering less competition from taller trees) has eclipsed its parent in form and size. Even though this distinctive maple is considered a tall shrub or small tree in its native habitat of Japan, the largest I have observed, in Westonbirt Arboretum in England, was nearly 40 feet in height.

## Spidery Foliage: *Acer pentaphyllum*

It was at the famous Western Hills Nursery, in Occidental, California, that I was first introduced to *Acer pentaphyllum*. In their remarkable display garden I came across a small tree in full summer dress, with leaves composed of five extremely narrow leaflets to five inches in length, which lent an air of tropical spidery-foliaged bamboo. Indeed (remember I said no favorites), I think it among the most handsome maple species for effects of foliage alone. The petioles



DANIEL J. HINKLEY



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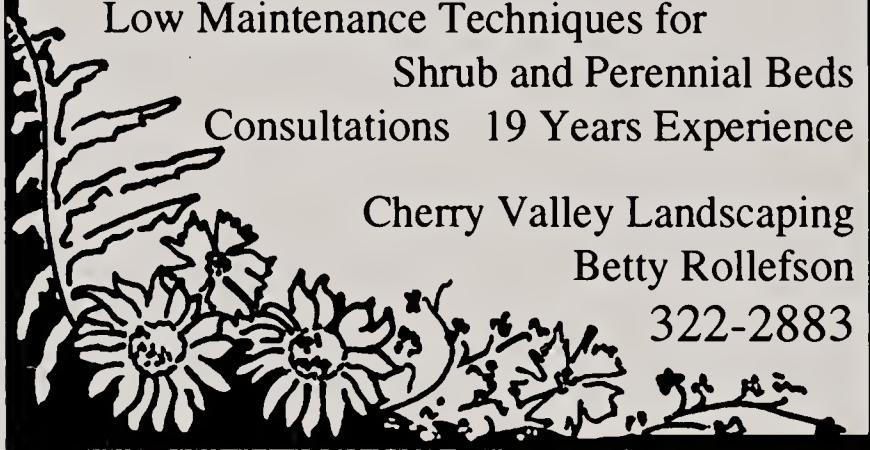
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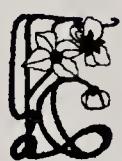
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are deep red throughout summer, even when planted in semi-shaded conditions, contrasting with the deep green leaf blades.

*Acer pentaphyllum* possesses a short history in cultivation, in fact was only first discovered in 1929 by the American plant explorer Joseph Rock in the remote Yalung Valley of Sichuan Province. Though it is generally thought of as too tender for planting outdoors in the Pacific Northwest, my own experiences have proved otherwise. Without risking the mother plant that is lodged in our cold frame, a rooted cutting was planted out under a tall overstory of Douglas-firs three years ago. The yearly growth has been generous and no dieback has occurred. The tendency of this maple to leaf out extremely late (often not until early June) may explain its reputation for tenderness, with dormant plants checked for dead before growth commences. The specimen in Occidental has now achieved 25 feet in height, but the ultimate size in our cooler maritime climate may prove to be much smaller. I am extremely interested in hearing from others in our area who cultivate this rare and decorative species.

### The Hawthorn Maple: *Acer crataegifolium*

*Acer crataegifolium*, the hawthorn maple, like *A. distylum*, is endemic to the Japanese Archipelago. And, like *A. distylum*, the leaf shape of this species is quite unlike that of any other maple, with small three-lobed leaves to one and one-half inches in length, the central lobe extending twice as long as the two side lobes. Quite superficially, the leaves are reminiscent of those of the hawthorn, genus *Crataegus*, and hence the specific epithet.

Within the Aceraceae, *Acer crataegifolium* is found in the Section Macrantha, which houses the stripebark maples (e.g., *Acer tegmentosum*, *A. davidii*, *A. pensylvanicum*, etc.) In this species, deep purple twigs become suffused with striations of white as the bark matures but never to the extent of other species grown for this effect. Though I do cultivate and admire this species as it occurs in its natural state, it is the cultivar known as 'Veitchii' that I wish to praise at the moment. The leaves of this selection are irregularly blotched with white and pink, like dappled sunlight caught and held on the surface of the leaves. It makes a small tree, as evidenced by a mature specimen on the southern bank of the Arboretum's Woodland

Garden, reaching less than 15 feet in height. Not only is it tolerant of shade but quite dependent upon it, since the leaves and bark will scorch under full sun conditions. It is greatly admired in my own woodland garden, underplanted with a froth of *Tiarella trifoliata*, our native foam flower with 10-inch stems coated in white flowers, complementing the luminescence of the maple's variegated foliage.

With remarkable diversity of form and function, the maples' potential for enlivening the landscapes of our lives is enormous. I would encourage every serious Northwest gardener and horticulturist to explore this family of trees, which has long remained unchallenged as the aristocracy of the plant kingdom. *Handwritten signature*

Daniel J. Hinkley's master's thesis, "An Interpretation of the Maple Collection of the Washington Park Arboretum," is available in the Elisabeth C. Miller Library, University of Washington Center for Urban Horticulture, Seattle. Hinkley is a member of the editorial board of the *Washington Park Arboretum Bulletin*, writes for national horticultural publications, and is the author of *Winter Ornamentals*.



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# Pruning Japanese Maples

by Christina Pfeiffer



KATE ALLEN, COURTESY OF PLANT AMNESTY, SUMMER 1994

Remove deadwood, a few crossers, and branches touching the ground.

**J**apanese maples are probably one of the most elegant garden trees grown in the Pacific Northwest. The spreading, often asymmetric, crowns trace a graceful pattern in the landscape. These trees should be pruned in a manner that respects their refined natural character.

Japanese maples have an incredible range in size and form from upright to weeping, from the larger ones growing over 25 feet in height, to dwarf forms barely reaching two feet tall. Before making the first cut, study the natural habit of the plant. Look at the trunk and main branches. Pruning work should follow the natural architecture of the tree, leaving it to look as though it were never touched by human hands.

Use good sharp tools including bypass-style pruners (never use anvil-head pruners) and small

hand saws. It is wise to disinfect tools between cuts within a tree and from tree to tree if there has been evidence of *Verticillium* wilt in your garden. Isopropyl alcohol or a 10 percent bleach solution in a hand spray bottle is a convenient way to do this.

Use thinning cuts to remove branches back to the point of origin, always leaving a larger branch than the one removed. Never leave stubs. Leave the branch collar intact, however, being careful not to cut flush against the trunk.

## What to Do

First remove dead limbs and twigs; that is often all that is needed. However, many Japanese maples develop a dense canopy, completely obscuring the trunk and inner branches. Lightly

thin out some of the smaller branches to reveal the architecture of the trunk and main branches. Branches of weeping or low-growing trees that have begun to drag on the ground can be lifted by thinning out the longest branches.

Next, work on any branches that may be growing out of bounds from the rest of the plant or interfering with a walkway or building. Some cultivars with finely dissected or multi-colored leaves may begin to "revert" to a standard form. Any branches showing reversion should be pruned out immediately, to prevent a rapid spread throughout the entire tree.

Remember to stand back frequently to look at the whole plant as you work. Be conservative; do not prune out too many branches in any one season.

### When to Prune

Be cautious about choosing the time to prune; winter isn't always the right time. In the maritime Northwest, with the moderate temperatures that occur through winter, we have seen maples pruned during winter dormancy "bleed" sap on and off all season, especially where branches larger than one inch in diameter have been removed. In some instances, this constant moisture against the bark has resulted in a die-back and poor callus formation around the pruning wound. For these reasons, dormant season pruning should be done in the later winter.

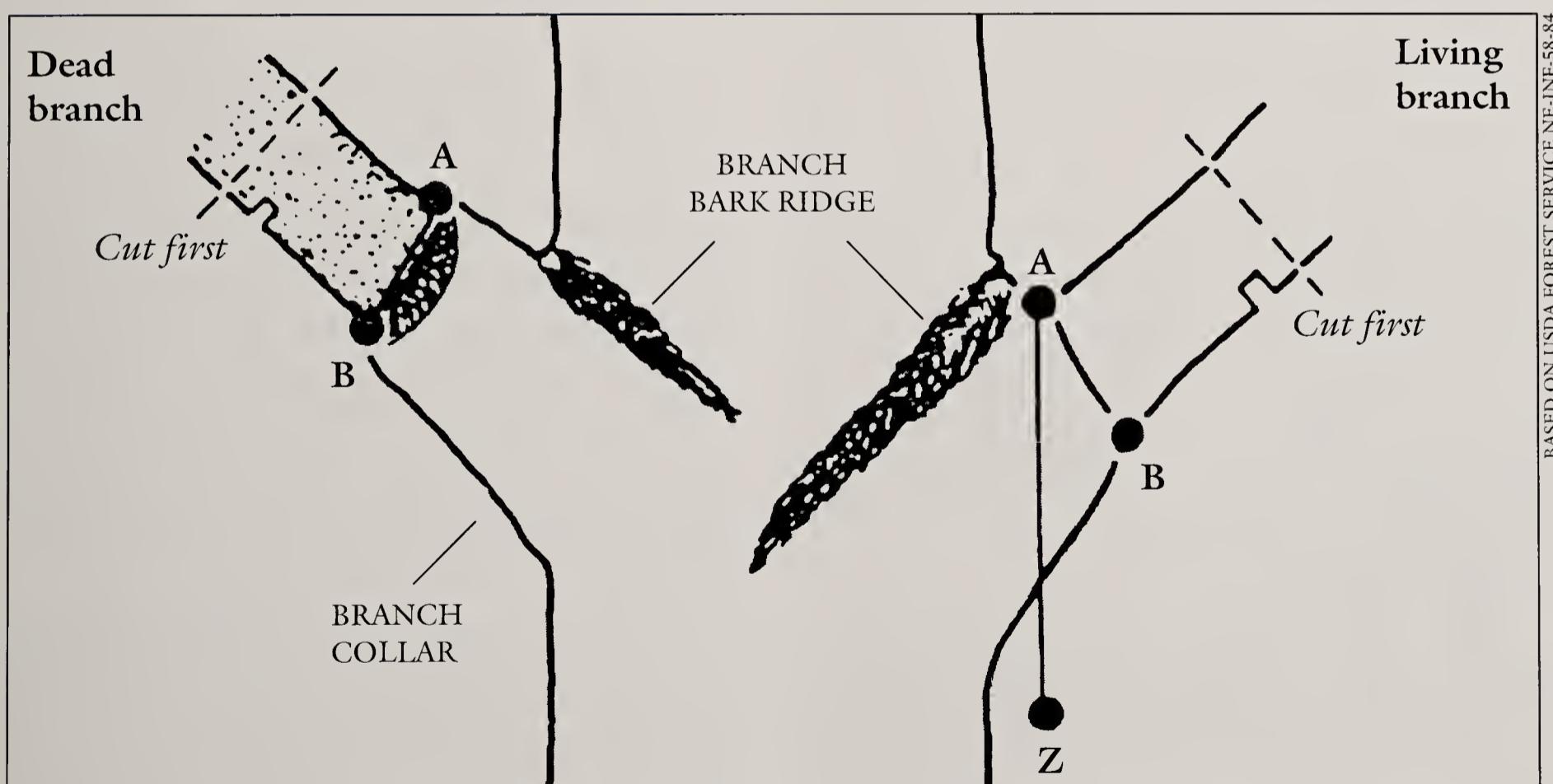
Never prune when the buds begin to swell and new leaves are just expanding.

One of the best times to prune is in summer after the leaves have fully expanded. Pruning at this dry time of year reduces the potential for disease infection entering through the pruning wounds. It also reduces the potential for sucker responses that may occur after dormant season pruning. Deadwood is more readily apparent when the trees are in leaf.

### *Verticillium* Wilt

Maples are most susceptible to *Verticillium* wilt. External symptoms of this vascular disease include sudden dying and wilting of an individual limb, yellow and stunted leaves, and dried up leaves that hang onto the branches into winter. Symptoms appear in early summer to autumn. Olive green, brown, and black staining are observed in sapwood of cut branches. It is important to check for these symptoms when pruning out the dead wood. **This fungus lives in the soil and enters through the roots and trunk wounds.** Infected trees may die slowly or rapidly. A vigorous tree often lives many years with the presence of the fungi, but remove infected branches.

Christina Pfeiffer is the horticulturist of the Washington Park Arboretum and an International Society of Arboriculture (ISA) certified arborist.



# The Capricious Native: *Acer glabrum* ssp. *douglasii*

by Mary Sue Gee

Just last summer when on a field trip in the L. T. Murray Wildlife Recreation Area east of the Cascades, I caught sight of a single, dwarf tree on the north side of a rolling hill grey-green with rabbitbrush, lupines, and asters. On examining the leaves, one to three inches wide, three-lobed and red-stalked, I realized I was looking at our third native maple, *Acer glabrum*; the other two are *A. circinatum*, the vine maple, and *A. macrophyllum*, the big-leaf maple.

My second encounter was closer to home, in an 106-acre parcel of wetlands, creek front, oak savannas and disturbed prairie in Pierce County. But this specimen was medium-sized, multi-trunked, and a fresh green and glaucous red—our west-side subspecies, *Acer glabrum* ssp. *douglasii* (Douglas maple). This maple is not common, and, when found, it is capricious in size and form, and leaf shape and color.

Trees might be 10 to 40 feet high, sometimes shrub-like, and at other times, single-trunked with a narrow crown of upright branches often pointing upward, the ultimate shoots colored a soft red under a waxy bloom. The small to medium, toothed leaves have three to five lobes, sometimes blunt and at other times pointed; the center lobe can be so deeply cut from the outer two that the leaf appears as “cutleaf.” A medium but complex green in summer, with highlights of warm hues, the leaves change in autumn. Sources of information are as variable as this maple, reporting that the foliage merely turns pale yellow, or scarlet, or orange and red.

In the wild on the west side, *Acer glabrum* ssp. *douglasii* grows on rocky cliffs, canyon sides and gulches in the Cascades, Olympics, and San Juan Islands. Closer to the Puget Sound lowlands and southwest of Tacoma is the Flett Creek parcel owned by Clover Park Technical College. Here, a bank of Douglas maple grows along the terrace break between the riverine wetland with willows and the upland of *Quercus garryana* (Garry oak).

This narrow island of maples is awkward to approach. Scrambling down the slope, I encoun-



Foliage and double-winged samara (seeds) of *Acer glabrum* ssp. *douglasii* on the terrace break of Flett Creek, Pierce County, Washington.

tered a wall of *Holodiscus discolor* (ocean spray) peppered with *Philadelphus lewisii* (mock orange). Flanking that, I tangled with thorny canes of blackberries and *Rubus leucodermis* (blackcap) before reaching an opening. Looking back up the hillside, the milky white and cream blossoms of mock orange and ocean spray created a spectacular backdrop for the grove of maples.

The maples range from seedlings to saplings to old clumps with five to eight trunks often eight inches in diameter. These clumps are 20 to 25 feet high and at least that wide; they resemble the form of vine maples with their low, round shapes and old branches inclined to the horizontal. The trees are throwing sprouts from

their bases, and both old and new bark have smooth surfaces grooved with minute lines. The striations contrast handsomely with the barks; old are gray on gray, and new are grayish white on wine red. Angled at about 45 degrees and maple-winged, the seeds are thick in clusters with curved tops. The leaves are three-lobed and rounded, some with red veinlets flowing into long red stalks.

Easier to access are four specimens of *Acer glabrum* ssp. *douglasii* in the Washington Park Arboretum. One of these is located in the rock garden just north of the intersection of Lake Washington Boulevard East and Arboretum Drive East. In this rocky berm grows a specimen collected on the trail to Wagonwheel Lake in the Skokomish Valley by Brian O. Mulligan, director emeritus of the Washington Park Arboretum. Planted out in the early 1950s, the tree is now 20 to 25 feet tall with one main trunk (three to four inches thick) and several young stems at its base. Its leaves have shallow lobes and seem solid green. But when the wind sways the top branches and flips the leaves undersides up, glaucous red is visible.

Native plant specialist Arthur R. Kruckeberg (1982) writes that *Acer glabrum* "shows garden promise along with other three-leafleted small maples." At home in exposed places—tolerant of cold weather, poor soil, drought, full sun, and strong winds—*Douglas maple is hardy*. Easy to grow, it can lend itself to urban gardens and city streets where planting sites have meager topsoil, space, and protection. And with its "cutleaf" look, while it may not substitute for Japanese cutleaf maples, it can be a strong candidate when selecting trees that are ecologically appropriate and that fit small, sunny gardens. Donald C. Peattie (1953) values its good looks. In *A Natural History of Western Trees*, Peattie remarks, "No maple can help being beautiful and even this one is no exception, with its bicolored leaves spinning gracefully on the long, slim bright red stalks." And Brian Mulligan writes, "This is a most attractive and pleasing small tree" (1970).

Cultivars of Douglas maple have not been selected. Appreciating the diversity of the species, careful selection could provide gardeners with an array of ornamental maples. Consider the 20 seedlings that I ordered last spring and am growing. Five are short (12 inches) with the leaves that are small, rounded and shallow

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lobed. The others are two to four times taller with at least three leaf forms on several of the plants.

Seedlings are easier to grow than the seeds are to germinate. Nursery people I have talked with chortled as they chatted about impermeable seed coats requiring scarification techniques like soaking, freezing, and driving back and forth over the seeds with forklifts and trucks. They also spoke of a seed inhibitor that is partially avoided by collecting the double samara while firm and green and still on the tree. Another trick is to simply overplant; viable seeds may be sparse because of poor pollination since Douglas maple can produce female and male flowers on the same or separate plants.

Advice for garden design and seed viability comes from Mr. Mulligan. "Because of its natural habit, it would seem best to plant it in groups or clumps rather than as isolated specimens and this might also aid in the production of fertile seeds" (1970).

My seedlings are ready to plant out this fall. I have space and sites to spare in my garden for all three native maples. Vine maples on the upland in the shade of Douglas-firs (*Pseudotsuga menziesii*). Bigleaf maples edging the Douglas fir-Garry oak woodland and self-sowing down into the drainage basin. Farther east in the gully, a slope of gravelly, sandy loam begs for a bank of Douglas maple. I want to look out my bay windows and see maple leaves playing against blossoms of ocean spray and mock orange. To walk along this gully, protected. To feel the smooth leaves and bark. To enjoy a variety of Douglas maple and other companion plants that also like open and drier sites with fast drainage, such as madrone (*Arbutus menziesii*), serviceberry (*Amelanchier alnifolia*), Oregon grape (*Mahonia aquifolium*), and the Nootka rose (*Rosa nutkana*). I won't be in a rush to plant other associates such as snowberry, blackcaps and blackberries; I want to manage the hordes crawling out of the woods, up from the urban parking lot below, and over neighboring fences.

The author wishes to acknowledge the assistance of Nancy White at Clover Park Technical College, Brian Mulligan and the staff at Washington Park Arboretum, and the staff at Elisabeth C. Miller Library.

Mary Sue Gee writes from Tacoma, Washington.

## Viewing Douglas Maple

### KING COUNTY:

#### WASHINGTON PARK ARBORETUM

LOCATION: 2300 Arboretum Drive East, Seattle

OPEN: Daylight hours

DIRECTIONS: From Interstate 5, take the East Madison Street exit. Follow East Madison Street, turn right on to Arboretum Drive East.

LANDSCAPE: Directly inside the Arboretum and north of the intersection is a rock garden. Park in the closest lot and walk back down the road. In this rock garden just north of the Hillside Trail is Douglas maple next to a large pine. See the map in the newly published *The Woody Plant Collection in the Washington Park Arboretum* in the Graham Visitors Center for more locations.

### PIERCE COUNTY:

#### CLOVER PARK TECHNICAL COLLEGE

LOCATION: 4500 Steilacoom Blvd S.W., Tacoma

OPEN: 8 to 5 weekdays

DIRECTIONS: From Interstate 5, take exit 127 and go south on South Tacoma Way. Turn west on Steilacoom Boulevard. Clover Park Technical College is on the south side of the road with visitor parking.

LANDSCAPE: A bank of maples between the Garry oak upland and the Flett Creek wetland. This parcel is privately owned by CPTC and is not open to the general public at this time. For permission to view, call and make arrangements with Nancy White at (206) 589-5590.

#### PIERCE COUNTY-KING COUNTY: THE INTERPRETIVE CENTER AT FEDERATION FOREST STATE PARK

LOCATION: 17 miles east of Enumclaw on Hwy 410

OPEN: Day use only

DIRECTIONS: Take Highway 410 southeast towards Yakima. About 17 miles east of Enumclaw, turn south into the park. The Catherine Montgomery Interpretive Center is near the entrance and has commodious parking lots.

LANDSCAPE: One Douglas maple is planted in the "yellow pine zone" in front of the Center. The park contains 612 acres of virgin trees with superb specimens of old Sitka spruce, Douglas fir, and red cedar on easy, well-groomed trails.

### PIERCE COUNTY:

#### THE NORTHWEST NATIVE GARDEN

LOCATION: Point Defiance Park, 5400 Pearl Street, Tacoma

OPEN: Sunrise to one-half hour after sunset

DIRECTIONS: From Interstate 5, take exit 131 towards Highway 16 west. From this spur, take the exit for 6th Avenue and Point Defiance Park, turn left on to 6th Avenue and shortly turn right on to Pearl

Street, which leads directly to the park. Inside the park follow the one-way road around and behind the zoo, heading back towards the entrance. Right before the entrance/exit is the Northwest Native Garden.

LANDSCAPE: Established in 1964 by the Tacoma Garden Club, the exhibit area is one and a half acres planted in six geographical zones. Two specimens of Douglas maple are up the grade and toward the right.

### OLYMPIC MOUNTAINS: CLALLAM COUNTY

LOCATION: Three O'Clock Ridge in the Buckhorn Wilderness near Mt. Maynard, Cougar Creek, Bungalow Creek and Dungeness River

SOURCE: Jerry Gorsline, Nelsa Buckingham, and a USFS ecologist

### OLYMPIC MOUNTAINS: CLALLAM COUNTY

LOCATION: Crystal Creek area where maples are visible from the Olympic Hot Springs Road

SOURCE: Nelsa Buckingham

### OLYMPIC MOUNTAINS: CLALLAM COUNTY

LOCATION: Trail to Mt. Townsend

SOURCE: Daniel J. Hinkley

### OLYMPIC MOUNTAINS: JEFFERSON COUNTY

LOCATION: Trail to Mt. Juniper

SOURCE: Daniel J. Hinkley

### OLYMPIC MOUNTAINS: MASON COUNTY

LOCATION: Trail to Wagonwheel Lake north of Lake Cushman in the Skokomish River Valley

SOURCE: Brian O. Mulligan

### CASCADE MOUNTAINS:

#### SNOHOMISH COUNTY

LOCATION: East of Granite Falls along Perry Creek in the Stillaguamish River Valley

SOURCE: Arthur Kruckeberg

## Nursery Sources of Douglas Maple

Call first to inquire about supply  
of seeds or seedlings.

Frosty Hollow: Box 53, Langley, WA 98260;  
(206) 221-2332 (seeds).

Plants of the Wild: PO BOX 866, Tekoa, WA 99033; (509) 284-2848 (plants).

See *Hortus Northwest* in the Elisabeth C. Miller Library for several other suppliers.

## References

Kruckeberg, Arthur R. 1982. *Gardening with Native Plants of the Pacific Northwest*. Seattle: University of Washington Press.

Mulligan, Brian O. 1971. "Maples in the Northwestern USA." *International Dendrology Society Yearbook 1970*. London: Intn'l Dendrology Soc.

Peattie, Donald C. 1953. *A Natural History of Western Trees*. Boston: Houghton Mifflin Co.

# In the Washington Park Arboretum

by John A. Wott



PHOTO BY JORDAN REAMS, UW PHOTOGRAPHY

## Visit the Japanese Maples

On its 200 acres near the heart of Seattle, the Washington Park Arboretum displays nearly 4500 different taxa of trees, shrubs, and vines. One of the major collections, the Japanese maples (*Acer palmatum*), is located in the Woodland Garden, a historic feature of the Arboretum.

The Woodland Garden is a highly visited area, especially during the fall color season. The garden runs along a narrow valley with a pond (cleaned and repaired this summer) at either end, connected by a flowing stream. With its water features, tall conifer overstory, and two fairly steep slopes flanking its center, the valley is a very suitable setting for the display of plant species well adapted to a woodland setting. We believe that no other public garden in the United

States contains a collection of Japanese maples even half as large as ours. Furthermore, few gardens in this country have a climate as suitable for growing Japanese maples as we have in Seattle.

Our collection contains nearly 170 species, varieties, and cultivars, with 132 planted in the Woodland Garden. Maple authority J. D. Vertrees lists approximately 250 taxa of Japanese maples in his monograph, *Japanese Maples*.

## Maple Evaluation

In 1994, the Arboretum received a \$25,000 conservation grant from the Institute of Museum Services for improving the curatorial evaluation, verification, and cultural evaluation, for site improvements, and to determine which accessions are worthy and/or unhealthy.



JOY SPURR

*Acer palmatum* in the upper pond area in November

During the summer of 1994, two interns—Julie Palasma and Kim Anderson, under the supervision of Tracy Omar, assistant curator and recorder—each spent eight weeks evaluating the Japanese maples in the Arboretum. Following is a summary of their reports.

Julie Palasma first evaluated the condition of each tree, classifying it as in very good, good, fair/good, fair, or poor condition. Poor trees had over 30 percent dead wood. They were often found in crowded and shaded sites, which resulted in distorted growing habits and signs of disease. Of the 170 trees evaluated, only three percent were very good, while 80 percent were fair to good. The other 17 percent were judged fair to poor.

Crowding and shading were the most commonly cited problems in the Japanese Maple Collection. Often, large amounts of deadwood were found in the lower branches. In some areas, certain specimens were no longer visible from the paths. This is especially noticeable in grid 32-B, which is on the north-facing slope just south of the west (lower) pond. This area is completely shaded by the large red cedars, Douglas-firs, and hemlocks, which have grown tremendously since the Japanese maples were originally planted.

Julie also classified the trees into 13 different morphotypes, depending on the type and color of leaves and growth habit. The majority (52 percent) of our collection is comprised of green-leaved types. The rest are 15 percent red leaved, 16 percent variegated leaves, and the remainder are either dissected, linear lobed, weeping, or dwarf.

*Acer palmatum* cultivars are propagated primarily through grafting, thus each new plant is genetically identical with the "mother" plant. If propagated by seed, the species produces many different variations, mostly in the foliage. Kim Anderson wrote that it was this predisposition for mutation "that has allowed the wide, diverse selection of cultivars that exists today to arise."

In her summer survey, Kim noted that perhaps nearly 50 percent of the collection was no longer the actual described cultivar. This has occurred through four different ways. The most common is a failed graft in which the scion dies and the shoots from the understock become the dominant plant.

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Second, cultivars from bud-sport material are unstable and quite often revert back to the typical green-leaved shoot, which is more vigorous. Over time, the more vigorous green shoots become dominant.

In some instances, the original plant may have died, and a seedling may have grown up in the same spot, then been labeled with the original plant's name without further verification.

Finally, we are also aware that a number of cultivars originally obtained as seed were originally listed as "plants," which means they may have been seedlings and not grafted. The original plant may not have been a cultivar but a wild type seedling.

As fall progresses, we will continue to verify specimens in the Maple Collection. Fall color is one of the definitive characteristics for cultivar identification.

Currently, as you walk though the Woodland Garden, you will note that there are red and blue ribbons on the trees. In this way, we are more easily able to review the plants and eventually we will remove aging cultivars that cannot be verified and replace them with newer authentic cultivars.

*Continued on next page.*

It is apparent that a cultivar collection of this type requires more attention at regular intervals, especially in regard to verification of the plants. This is especially true of the Japanese maples, which are very prone to reversion and sometimes can almost "change" their identity overnight.

### Pond Cleaning Continues

Pond cleaning, through funds raised by The Arboretum Foundation, continued during August and September. The cleaning of the lower pond in the Woodland Garden was done with Sonneman Design, Inc., in charge. Christina Pfeiffer, horticulturist, and Polly El Aidi, landscape architect, were instrumental in leading the cleaning and design process.

There was much more "spoil" in the bottom of the lower pond than expected, so it was taken to the "flats" where it is being spread and seeded over with turf grass. A number of large stones were set along the southern section, and many small rocks were added to the spillway. The overflow drainage standpipe was removed and shortened. Special fittings were needed in order to connect the new pipes into the old wooden pipe, which drains under Azalea Way. A viewing deck is being built, to hide the drain and to provide

access to the water. A number of ferns, selected with the consultation of Judith Jones, Barfod Ferns, are being planted along the pond edge.

### Vandalism

The problems of the inner city have now reached the Arboretum. Since August, vandals have driven through collection areas in the Mulligan Sorbus Collection and in Azalea Way sometime during the evening hours. Several valuable plants have been destroyed, signs have been damaged, and turf areas injured.

### Pacific Northwest Garden Network

A leaflet that will list all area gardens will be published by the Pacific Northwest Garden Network. The publication, which gives reciprocal perks to Network members, is the result of a meeting of 13 Northwest public garden directors, including myself, which was held at Tacoma's Lakewold Gardens in September 1994.

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John A. Wott, Ph.D., is director of Arboreta, Washington Park Arboretum, and professor of Urban Horticulture, CUH, University of Washington, Seattle. The UW manages the collections and the associated arboretum programs, and works cooperatively with City of Seattle and The Arboretum Foundation.

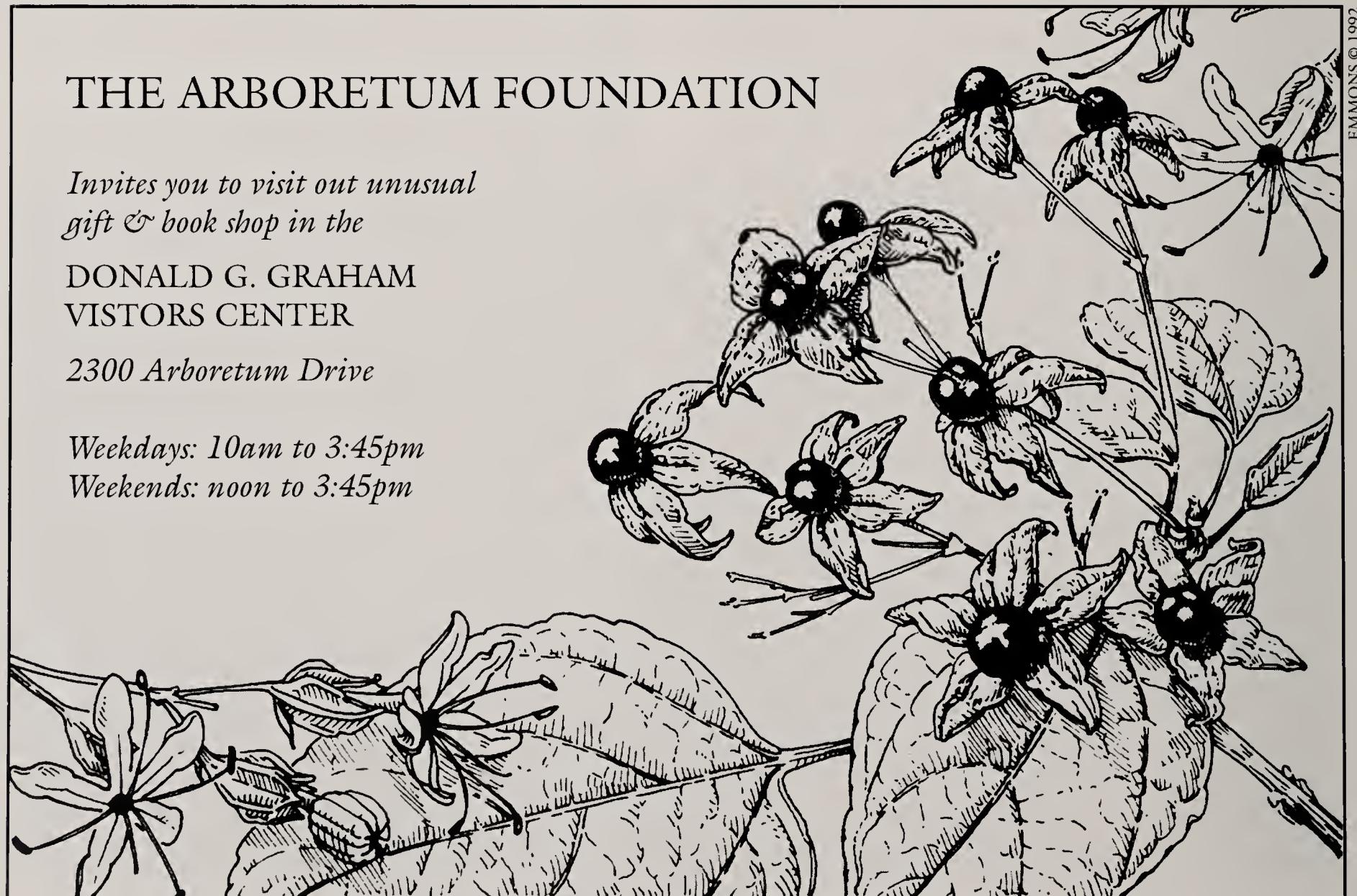
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# Book Review

## *Maples of the World*

D. M. van Gelderen, P. C. de Jong, and H. J. Oterdoom. Theodore R. Dudley, Ph.D., scientific editor. *Photographs by J. R. P. van Hoey Smith. Line drawings by Inez Langevoort-de Maaré*. Portland, OR: Timber Press, 1994. \$59.95. ISBN 0-88192-000-2.

From a distance, the family of maples (Aceraceae) appears neat and easily discernible with only two genera included: *Acer*, the maples, and *Dipteronia*, a genus of two species, one of which—*D. sinensis*—is represented in the Arboretum's collection. Closer inspection, however, reveals an enormous jigsaw puzzle, which has been awkwardly pieced together beginning as early as the 5th century B.C. with Pliny the Elder. Since the heart of the geographic range of maples lies in the still relatively unexplored regions of China, those first delving into this genus had available to them a paucity of material to study.

Now, nearly 2500 years later, the first comprehensive treatment of this remarkable family has been published. Nineteen years of meticulous research by maple authorities from around the globe has culminated in a treatise that brings into focus an image that has long been clouded by inexactitude.

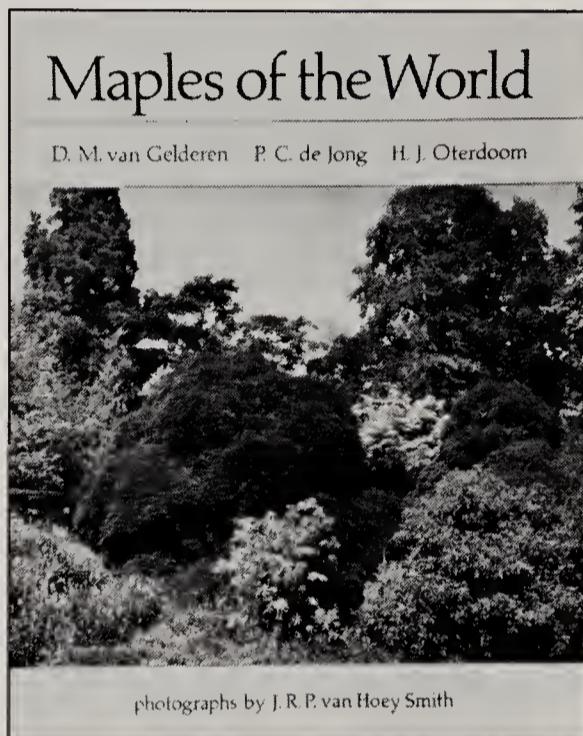
There are few places that this tome could be more appreciated than in the Washington Park Arboretum. We boast one of the best public collections of maple species in North America, with over 125 species, subspecies, cultivars, and hybrids represented. In addition, there are numerous cultivars of *Acer palmatum*, the Japanese maple, found in the Woodland Garden as well as in the Japanese Garden. Not only does this book set a standard for nomenclature from which to better interpret this collection but also makes apparent the absence of numerous ornamental species not currently found in the collection.

With a plethora of recently published gardening books whose main entrees seem nothing

more than an overpolished day in the garden, it is exciting to find such a substantive reference book with generous servings of gutsy information. Whereas this work is invaluable in a research collection or in the plant collector's and nurseryperson's shelf, I suspect it would find infrequent use by the lay horticulturist. Though I do not find this objectionable, the appearance of a last minute attempt to broaden the audience by including feeble sections on landscaping with maples as well as propagation only detracts from the work. For those, however, with more than a passing interest in evolution, the marvelous intricacies of reproduction, or the exasperating details of why plant names change, there are days of entertainment here. The two hundred plus color photographs are superb.

The exhaustive reworking of the Aceraceae found within these pages is at first dangerous to those with a little bit of knowledge. *Acer ginnala* has been reduced to subspecies rank of *Acer tataricum* as has *Acer grosseri* (to *Acer davidii*) and *A. lobelii* (to *A. cappadocicum*).

*Dipteronia*, the only other genus in Aceraceae, is somewhat ambiguously cast adrift towards the closely allied Sapindaceae. It is precisely this reworking, however, that has made this publication so significant. Taxonomists and horticulturists at last have a common point of departure from which to explore a remarkable family of trees. *Reviewed by Daniel J. Hinkley*



*Acer tataricum* ssp. *ginnala*

INEZ LANGEVOORT-DE MAARÉ

Daniel J. Hinkley is co-owner of Heronswood Nursery, Ltd., instructor at Edmonds Community College, and author of numerous articles on horticulture. He wrote *Winter Ornamentals* (Sasquatch Books) and is on the editorial board of the *Arboretum Bulletin* as well as a member of The Arboretum Foundation board.



*Acer tataricum* ssp. *ginnala*

## For Further Information: Maples

by Valerie Easton

Maples in all their variety and plenitude have not been abundantly written about. The International Maple Society, which publishes a newsletter, can be reached in care of Mr. Peter A. Gregory, 3 Park Close, Tetbury, Gloucestershire, GL8 8HS, United Kingdom. Listed below are books and journal articles that can be found in the Elisabeth C. Miller Library.

Bean, W. J. *Trees and Shrubs Hardy in the British Isles*. 8th ed., revised. New York: St. Martin's Press, 1981. Vol. 1 and supplement, 1988.

Grant, John A., and Carol L. Grant. *Trees and Shrubs for Pacific Northwest Gardens*. 2nd ed. Portland, OR: Timber Press, 1990.

Hinkley, Daniel J. "An Interpretation of the Maple Collection of the Washington Park Arboretum." Master's thesis, University of Washington, 1985.

Jacobson, Arthur Lee. *Trees of Seattle*. Seattle: Sasquatch Books, 1989.

Mulligan, Brian O. *Maples Cultivated in the United States and Canada*. Lancaster, PA: American Association of Botanical Gardens and Arboreta, 1958.

Phillips, Roger. *Trees of North America and Europe*. New York: Random House, 1978.

Van Gelderen, D. M., P. C. de Jong, and H. J. Oterdoom. *Maples of the World*. Portland, OR: Timber Press, 1994.

Van Pelt, Robert. *Washington Big Tree Program 1994*. Seattle, WA: College of Forest Resources, University of Washington, 1994.

Vertrees, J. D. *Japanese Maples: Momiji and Kaede*. 2nd ed. Portland, OR: Timber Press, 1987.

### Journals

*Arboricultural Journal, The International Journal of Urban Forestry*. Oxfordshire, England: AB Academic Publishers.

*International Dendrology Society Yearbook 1970*. London: International Dendrology Society.

*Pacific Northwest Trees*: International Society of Arboriculture, Pacific Northwest Chapter.

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Valerie Easton is a librarian at the University of Washington Center for Urban Horticulture.

# New on the Shelves of the Elisabeth C. Miller Library

by Valerie Easton



COURTESY, UNIVERSITY PHOTOGRAPHY, UW

**A** useful new list by a local plant society, two new books on how to use plants in the garden, and a colorful children's book inspired by a Seattle community garden are highlights of new books in the library.

Bath, Trevor, and Joy Jones. *The Gardener's Guide to Growing Hardy Geraniums*. Portland, OR: Timber Press, 1994. ISBN 0-88192-278-1. This is the best kind of plant book, well and knowledgeably written, with photographs that clearly show color, form, and—most importantly—combinations for garden building. Hardy geraniums, "the little black dress of the garden," mix beautifully with shrubs, annuals, perennials, and roses to knit borders together and enhance the color and foliage of larger, showier plants.

The authors, along with other enthusiasts, describe how to grow and propagate over 200 kinds, and the assortment of colors, foliage, form and texture, growth habit, and growing conditions should promote much greater use of these versatile plants.

Conder, Susan. *Variegated Leaves: The Encyclopedia of Patterned Foliage*. New York: Macmillan, 1993. ISBN 0-02-527330-2. Some gardeners tend to have a slightly scornful attitude about variegated plants, but the role that light-splashed foliage can play in creating a beautiful garden is well illustrated here in text and photographs. Dark corners of the garden glow with golden-leaved *Hosta fortunei* 'Albopicta', and even nasturtiums look new and interesting with marbled leaves.

Close-up photos have the reader marveling at the perfection of the burgundy-trimmed leaves of *Epimedium diphyllo*, the sheer golden gaudiness of an entire hedge of *Ilex aquifolium*

'Golden King', and the slightly more subtle beauty of *Actinidia kolomikta* or *Berberis thunbergii* 'Rose Glow'.

The author discusses how to use the seemingly endless variety of leaf pattern and color to create light, contrast, depth, and movement in the garden as well as to enhance the bloom, color, and shape of plain-leaved plants.

Northwest Perennial Alliance. *The Northwest Perennial Alliance Drought-Tolerant Data Base: Water Conserving Plants for the Pacific Northwest West of the Cascades*. Seattle: Northwest Perennial Alliance, 1993. No ISBN. This thorough and impressive list was prepared by a group of amateur and professional gardeners and landscape designers interested in growing a wide variety of hardy, drought-tolerant plants in the Northwest region west of the Cascade mountains. Plants are listed alphabetically by botanical name, with a brief description, common name, type of plant, height, cultural information, bloom time, and water requirements (once established, "xeric" plants need no supplemental water, and "low water" plants require monthly watering). The listing by type of plant enables you to flip to grasses or bulbs, for example, to quickly see if a plant you are considering is drought tolerant.

If you have ideas for future additions to the plant list, there are forms in the back to send in with your suggestions. To order, send a check made out to Northwest Perennial Alliance for \$15 (\$12 plus \$3 postage and handling) to NPA, PO BOX 45574, University Station, Seattle, WA 98145.

Please enclose a note with your mailing address and state that the check is for a copy of this book.

Schaefer, Carole Lexa. *In the Children's Garden*. New York: Henry Holt, 1994. ISBN 0-8050-1958-8. A Northwest gardener was inspired to write her first picture book by the children's garden at Tilth in the Good Shepherd Center, in Seattle's Wallingford district. To capture the author's vision, a New York illustrator visited Seattle, and the result is a beautiful, fun-to-read book. Bright colors blurred with impressionistic lines give the feel of high summer and the mystery of corn and sunflowers growing many feet above a small person's head. The fun of children working together, the richness of "deep, dark dirt...tunneled through by worms," and the sights and smells of vegetable gardening are brought to life for young children.

#### Also New

Bridwell, Ferrell M. *Landscape Plants: Their Identification, Culture, and Use*. Albany, NY: Delmar Publishers, 1994. ISBN 0-8273-6017-7.

The California Center for Wildlife. *Living with Wildlife*. San Francisco: Sierra Club Books, 1994. ISBN 0-87156-547-1.

Howells, John. *Growing Clematis*. London: Ward Lock, 1994. ISBN 0-7063-7238-7.

Monroe, Enid. *An Artist in the Garden*. New York: Henry Holt, 1994. ISBN 0-8050-2718-1.

Obritzok, Robert A. *A Garden of Conifers: Introduction and Selection Guide*. Deer Park, WI: Capability's Books, 1994. ISBN 0-913643-08-4.

Thompson, Peter. *The Propagator's Handbook*. North Pomfret, VT: Trafalgar Square Publishing, 1993. ISBN 0-943955-69-6.

Thorpe, Patricia. *Growing Pains: Time and Change in the Garden*. New York: Harcourt Brace, 1994. ISBN 0-15-176652-5.

Verey, Rosemary. *Secret Gardens: Revealed by Their Owners*. Boston: Little, Brown, 1994. ISBN 0-8212-2074-8.

#### Note

The rose illustrated on the cover of the spring 1994 issue as *Rosa caudata* has been reidentified from fresh living material as *Rosa moyesii*, a well-known species from China. This is a particularly fine form of it, worthy of a clonal name to distinguish and perpetuate it.  
—Brian O. Mulligan, August 26, 1994.

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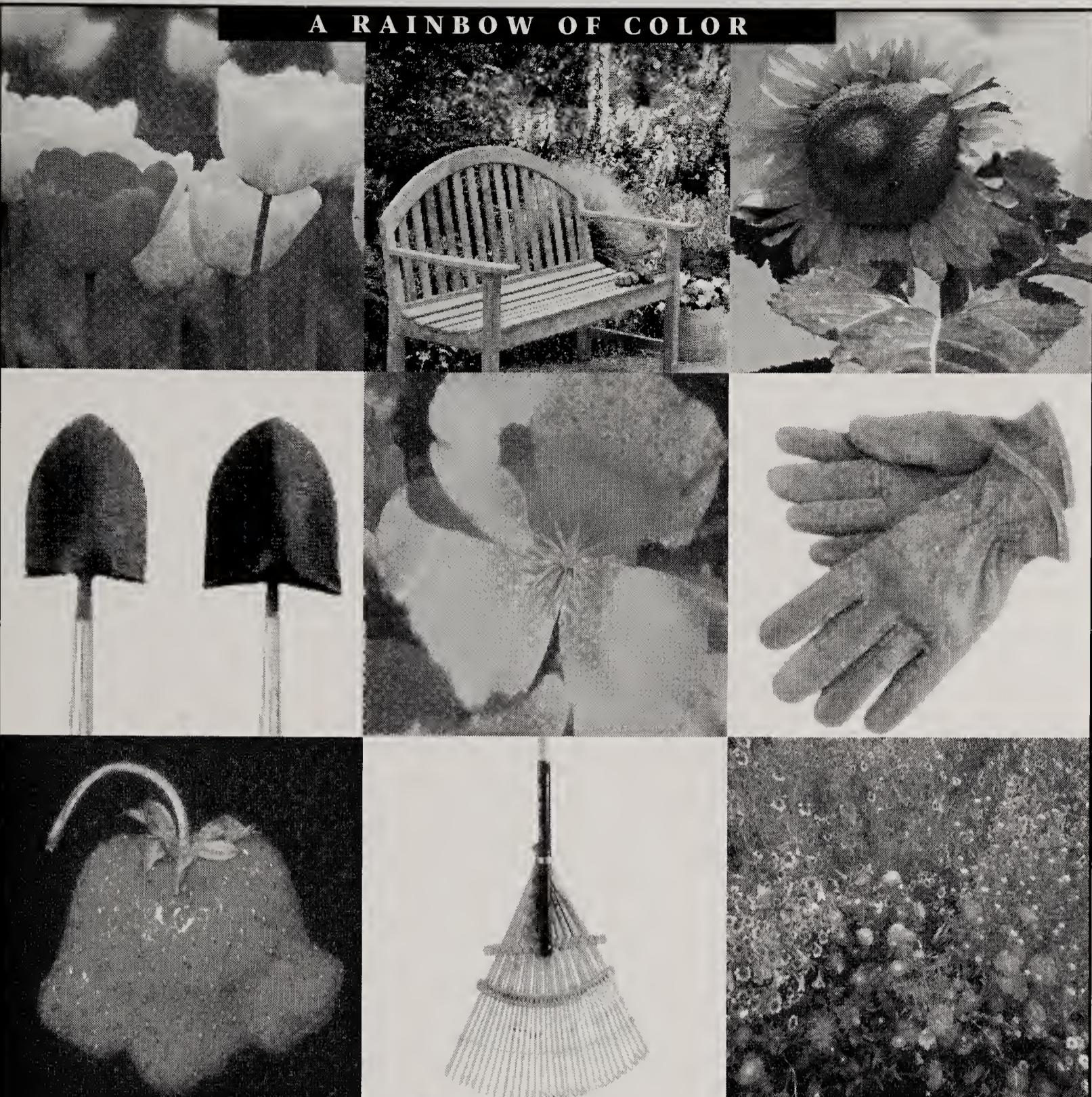
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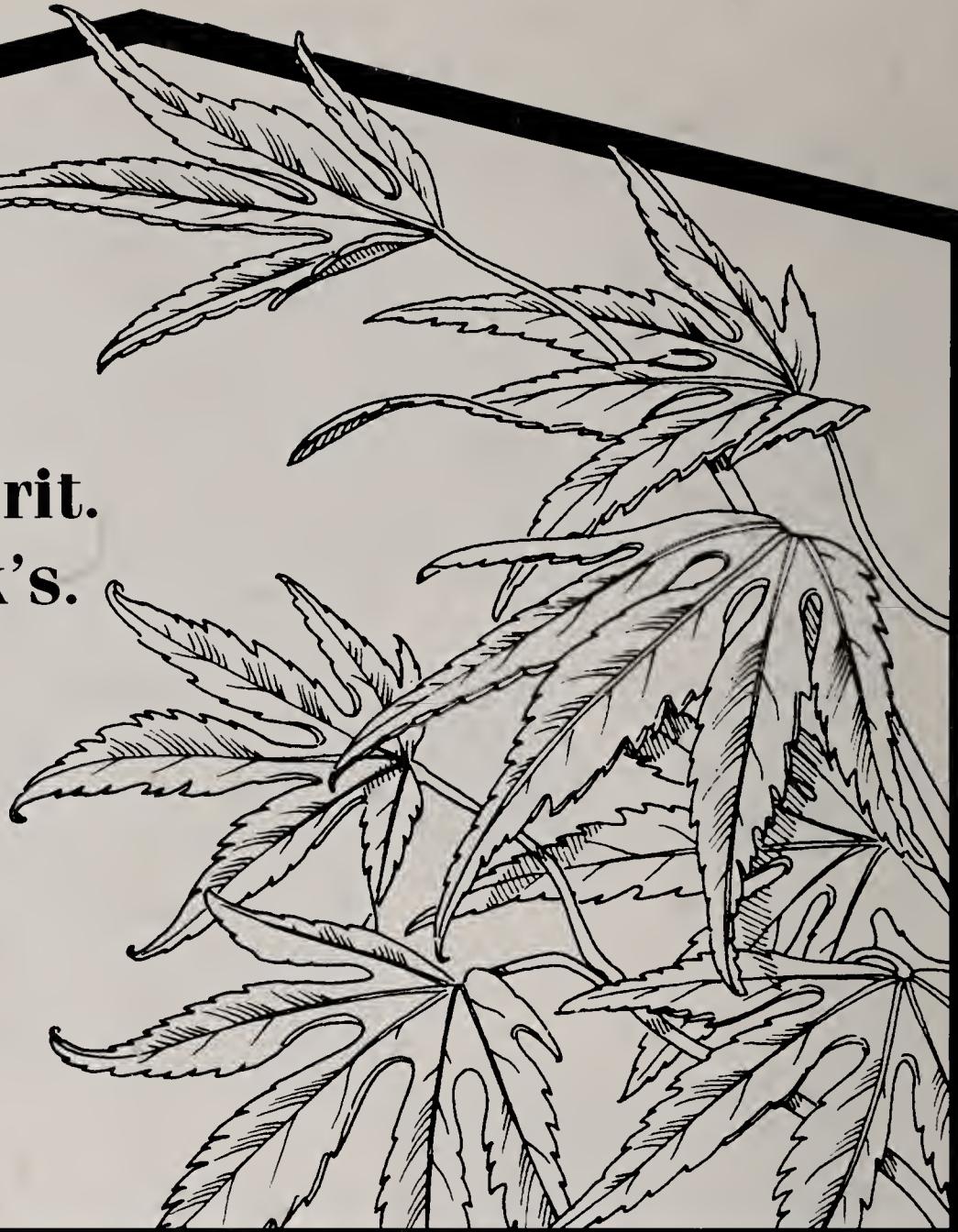
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